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"A PRACTICAL PAPER UPON GRADING, DITCHING AND IMPROVING LAND.

To which was awarded the premium of Twenty dollars, by the State Agricultural Society of South Carolina, at its Annual Meeting, in November, 1859.

BY D. WYATT AIKEN.

INTRODUCTION.

In agriculture, theory and practice are by no means co-relative terms. Theory depicts the planter's life one of ease, and portrays his arduous labors a task of leisure, while it flatters the sluggard, equipped with a little scientific knowledge, that planting, of all other pursuits, should be his. In theory "Paul may plant and Apollos may water," and the increase follows *ex necessitate*.

Theoretically, stimulating manures have only to be heaped upon all lands indiscriminately, and fat harvests will be reaped; or gullies are prevented by tapping the subsoil; or the level has only to be applied, and hill-side ditches are located. Theoretically, grain must be sown in level furrows, or seed must be planted upon horizontal beds, to prevent the escape of the virgin soil. In fact, theory in agriculture attaches plausibility to the most visionary schemes.

How different is the result of actual practice!—Practically, agriculture climbs high in the scale of sciences; it develops thought, matures judgment, and requires, for execution, untiring energy, perseverance and industry. The skillful planter stops not to theorize about the result effected by certain means applied; plow in hand, he grapples with the

soil, sows his seed, vigilantly watches the progress of his growing crop, and after assiduous cultivation, at harvest time anticipates a yield commensurate with his unabated zeal. It is he who understands best the caption of this essay, and knows that the improvement of land consists in increasing its productive capacity. Nor does any one know better than himself that this end is attained in three ways:

1st, by ditching, i. e. hill-side ditching, draining and bottom ditching.

2d, by cultivation, i. e. horizontal and grade culture.

3d, by rotation of crops and manuring.

The first step, then, towards improving any plot of exhausted undulating land, is the location of a series of ditches, so arranged as to empty, with least detriment to the land, all the surplus rain water into the creek or branch bottoms below, or into the adjacent forests, or in some direction out of the field. To do this effectually the land must be studied.—Its elevations and depressions must be studied; they must first be seen by the eye, and then made more perceptible by applying the level. The most practised eye should never venture to locate a ditch without the assistance of the level, in hilly lands, and the more moderately undulating the land, the more difficult the task, and the more judgment required to accomplish it successfully. It often happens that the particular inclinations of a large field are westward, while the general declination of the land is eastward, and *vice versa*, so that the level, when giving sufficient fall to the ditch, seems to the eye to be laying off a perfectly level line.

The nature of the land being understood, the next question is, where shall be the mouth or the source of the ditch. If the mouth be determined upon,

commence there, and with the level run backwards or up the ditch, always following, and never straining or forcing the level from its indicated direction. If the source can be more easily fixed, apply the level there and run towards the mouth, always observing one absolute requisite in hill-side ditching, viz: never let any part of the ditch near the source have a greater fall than any portion between this point and the mouth; for if such should be the case, the water in this steeper portion, having an accelerated motion, becomes retarded as it reaches the leveler section, deposits its rolling sand, heaps up upon the water in advance, and most probably causes a break in the ditch bank just there. Where sudden curves occur in circling abrupt knolls, the ditch should be made wider and not steeper than the succeeding portions.

The general direction of all ditches, if practicable, should be down the branch; for the water must, sooner or later, reach the bottom, and the lower down the bottom it is emptied from the ditches, the less injury sustained by the bottom lands above.

The distances between ditches should be best known by the planters upon their respective farms, depending upon the declivities of the land and the nature of the soil. On steep hill-sides, ditches should be distant from each other from twenty to thirty yards; upon gently inclined planes, from sixty to two hundred yards; upon stiff clay lands, close together; upon loamy soils or sandy lands, further apart. In a similar way should the fall of each ditch be determined, varying from two to four inches in every twelve feet, always observing to have the first or upper half of the ditch slightly more horizontal than the last or lower end.

Where the land is to be horizontalized, the ditches should have somewhat more fall than where the grade system is adopted, simply because where the horizontalization is complete, not enough water flows in the ditch to wash it into a gully; and when a freshet occurs any water-furrow filling up and breaking over, produces a "wash" from this point in a straight line to the ditch below, and empties into the ditch at right angles, to its bank, a column of water which will certainly wash away the bank, unless sufficient fall is given to the ditch to change the direction of the water before this result is produced. In the grade system, where the ditch receives constantly the rain-water as soon as it begins to flow in the water-furrow, the injury to the ditch bank is not so great, because the ditch carries off the water gradually from its commencement to flow.

To make a hill-side ditch, run the first furrow with the level; on the upper-side and close to this

furrow run three other furrows with a common shovel-plow. Draw the earth from these four furrows, with hoes or scoops, to the lower side of the first furrow. Then require all the hands there at work to walk several times the entire length of the ditch upon this earth, thereby compacting it for a bank, while the plowman is running three more furrows just where the last three were run. Treat this earth the same as before, and run two more furrows on the upper side of the ditch, draw out the dirt, walk the bank thoroughly, and the ditch is complete, with an almost level bottom, there being a slight depression on the side next the hill.

If a ditch should withstand the ordinary rains of a season, and break over during an extraordinary freshet, it should not be abandoned, but should be deepened for ten or fifteen feet on either side of the "break," sufficiently to furnish earth for a new bank, and to fill up partially the "wash" recently made, as far as the earth can be thrown with the shovel. These sinks in the ditch act as deposits for the soil otherwise washed away, and can be emptied at leisure by scattering the sand in the wash below, which, when mixed with the clay previously thrown there, produces an improved soil.

DITCHING WET LANDS.

Wet lands cannot be drained by hill-side ditches, but must have drains dug for the purpose, either blind or open drains. From the lowest spot of the wet plot (found by the level) run a straight line to the nearest point, where an exit from the field or into the creek can be obtained; along this line dig the ditch circling, if necessary, any intervening or immovable obstruction, and when complete, observe if the water follows the course of the ditch.—From the point where this drain began, continue the ditch through the wet spot until its source reaches the opposite side, or perhaps the highest point of the wet land. To be most effectual, the ditch should be left open. If necessary to be closed, lay tiling in the bottom, and throw the dirt back upon this tiling. If tiling is not at hand, many substitutes can be had by the planter. Three pine poles peeled, (the larger the better,) and two of them laid in the bottom of the ditch, and one just over these two, make a capital underground trough. An occasional rock thrown into the ditch and covered with slabs, the sawed face downwards, answers a good purpose. The ditch half-filled with small stones, these covered with brush, and the ditch filled with dirt, is the best method of under-draining.

I once owned a sour spot of land contiguous to a road, in which there was always a mud-hole.—

Along the edge, and through the whole length of this sour spot, parallel to the road, I dug a ditch three feet deep and eighteen inches wide. From the middle of this ditch, and at right angles to it, a similar ditch was dug across the road, opening into the hill-side below. These ditches were filled eighteen inches deep with small stones, and the earth previously taken from these ditches returned upon the stones. To this day that road is dry in moderately wet weather, and that sour spot of land mellow, fertile and productive.

In draining wet spots on bottom lands, the draining ditch should always be run in a straight line to the creek or branch, entering the same at an acute angle, and the dirt from this ditch invariably thrown on the lower side of the ditch.

DITCHING BOTTOM LANDS.

The protection of bottom land, by a successful system of ditching, involves an outlay too heavy to be borne by the majority of planters, particularly in the middle and upper Districts of our State, and hence the unsightly banks of sand, the decayed and dying timber, the crooked streams, and the prevalence of sickness on almost every plantation containing more or less of these valuable bottoms.—Many planters, too, are prone to charge their willful neglect in this matter upon their next neighbor below. They say, "he will not ditch below, and hence, ditching mine is only digging a ditch to be filled up with sand." Such a plea is unwarranted, because any bottom worth the labor to be bestowed can be successfully ditched, and protected in cultivation, regardless of the condition of the bottoms above or below.

Before the main ditch is dug, drains should be cut on each side of the bottom, through its entire length, and just where the adjoining hill-side and bottom come together. The size of these drains is, of course, dependent upon the quantity of water flowing from the hill-sides after a heavy fall of rain, or upon the uses to which they may be put. If the bottom is to be enclosed with a fence, these drains may be three and a half feet wide at top, one foot at bottom, three feet deep, and all the dirt thrown on the lower (or branch) side. Upon this bank an economical fence may be built, while the drain answers the purpose of carrying off the rain water coming from the hill-sides. If care is taken to give these drains a fall of one inch in twenty feet, and their exits made at the lowest ends of the bottom, the water they contain is kept entirely from the volume, which usually flows in the branch. These drains finished, the main ditch must be dug, which should only follow the channel of the branch when it is in the lowest part of the bottom, (which is not

always the case,) or when it is nearly straight.—The ditch should always be straight, in the lowest bed of the bottom, and large enough to draw the water of all ordinary rains. Unless, from necessity, it should never run through the middle of the bottom, but have at least two-thirds of the bottom behind the bank, there being but one bank to the ditch; then if the ditch has to encounter a freshet, only one-third of the bottom crop is liable to be overflowed, as the water in this third must be as deep as the ditch bank before the two-thirds behind the bank can be injured. If the ditch be in the middle of the bottom, only one-half the crop is protected; and if the dirt be thrown on each side of the ditch, making two banks, either or both are liable to be destroyed, and the entire crop lost. These ditch banks should be made solely of earth, unless a foundation cannot be obtained without the use of logs. Logs and brush put into a bank, made to confine running water, are oftener than otherwise an injury to the bank. At such places leakage is almost certain, and where either the logs or the brush project from the face of the bank, the constant laving of the water, will sooner or later, undermine the bank or percolate through behind the logs, and ultimately create a "crevace." If properly ditched, no lands remunerate the planter more handsomely than his bottoms. If improperly ditched, no lands subject him to a greater and more useless expense.

SYSTEMS OF CULTURE.

Some agricultural writers are accustomed to speak of the different systems of culture. I incline to the opinion there should be but two systems of culture, viz: The horizontal and the grade systems. To speak of the up and down hill method of destroying land, as a system, is akin to calling ours a system of stock-raising, when our cattle and stock generally are turned out to seek a sustenance upon the unenclosed pasture-lands of our neighbors. The one is as systematic as the other, and both equally condemned by charity and science.

Perfect horizontalization is certainly practicable, but that it is sure protection to both land and crop against freshets, however great, I hold to be an error. Innumerable causes, which the vigilant eye of the most skillful and energetic planter cannot prevent, will, at one time or another, produce "breaks" upon a hill side, and often upon a comparatively level plot of land. A tree, a stump, a rock, an unfinished furrow, irregular plowing, and, most of all, shallow plowing, are all obstacles in the way of the horizontalizer. That these should discourage him, is no argument, however, against the horizontal system of cultivating our crops.

The prime necessity in preparing a field for horizontalization is, to protect it perfectly from all water except what falls upon it from the heavens above. The adjoining forests or roads should be so ditched as to prevent any water flowing into the enclosure, for it is most often the running water, and not the falling rain, which destroys the labor of the horizontalizer.

This prevention being effected, the planter is ready for his work, and begins horizontalizing by finding, with his level, the highest point of the field, and the longest row or bed which passes through this point. The first corn or cotton bed may not be over ten feet long, and must be straight. On each side of this straight bed two or three more must be "laid off," each bending inwards at the ends, until it meets a fellow from the opposite side of the straight row. The plow team must never stop until the ends do meet, for stopping the team before the shovel reaches the end of the bed, leaves a mound in the water furrow, which diminishes its capacity to hold water, and often causes a "break." This irregular plowing will certainly be done, unless each plowman is instructed as to his certain and necessary duty; *i. e.*, never to stop his mule until his shovel reaches the extreme end of the bed.

These few beds being finished, at a distance from the last bed equal to the space occupied by a couple of beds, apply the level. It will, directly, as you follow it, diverge from the last bed, and assume a direction possibly the reverse of that indicated by the eye. But the horizontalizer should always bear in mind, he is to follow the level, and not the level follow him. This guide-row now laid off by the level, may reach the opposite side of the field six or eight beds distant from the row from which it was but six feet at the commencement. This divergence, which is strictly a spherical angle, must be filled up by short rows, the first being "laid off" parallel to the long guide-row, and the return furrow parallel to the short completed bed, observing as above to make their angle of union complete, and not allow the plow to stop as soon as the *team* reaches the end of the row.

This much done the planter begins again with his level three, four, five or six (never more) rows below the lower end of the last guide-row, and follows his level in the opposite direction from the row last run. This row may diverge and its end be five and twenty beds distant from the beginning of the row above. If so, the level is again applied in the angle, and several short rows run, when the divergencies are filled in as directed above. If this method is followed, the lowest point of the field will ulti-

mately be reached, and none of the work of to-day injured by the rains of to-night. The same direction should be followed in the cultivation of the crop—always begin on the highest point. If the planter begins to horizontalize at the foot of the hill, and climbs the hill, all the labors of to-day may be destroyed by the rains of to-morrow. If galled places are to be encountered, the horizontalizer should not be deterred, but follow his level across them; it knows how to manage broken as well as smooth surfaces, and will turn the planter up as he approaches, and down as he recedes from these spots, without the assistance of a thought.—If gullies are met with, they should be filled up by dams of stone, brush, pine tops, with the straw pointing up the gully, or by driving stakes, a few inches apart, across the gully, and interlining willow or green limbs. The last span or two of the level being inclined slightly towards the gully, will, after a few heavy rains, furnish earth enough to partially fill an ordinary gully.

A field in small grain stubble, or one previously cultivated in corn or cotton, is more easily horizontalized than one freshly broken up, because the smooth, worn stubble land, or the regular and equal undulations of the cotton or corn beds, do not present so many irregular depressions as the newly plowed field.—The surface, moreover, is firmer, and does yield to the weight of the level. As the field is laid off horizontally, it should be bedded "out and out" immediately, or the irregular ridges between the horizontal furrows, not being themselves horizontal, will occupy the space which should be occupied by water after a rain, and a break is often the consequence.

When one bed yields to the water, this running water does not stop until it reaches the hill-side ditch below. Its passage across the beds may be a straight line, or it may be a zig-zag rill, washing through one bed here and another there. To prevent these overflows entirely is practically impossible, for sometimes, falls of three, four, or five inches of rain occur in a single afternoon; and this quantity of water will fill up the water furrows and overflow the beds before the most thoroughly pulverized soil can absorb the half of it. On the 15th, 16th, and 17th of last May, my plantation was flooded by successive unusually heavy rains. My cotton, in stiff clay land, had been planted in a scooter furrow on the bed, covered by a double-footed scooter plow, and harrowed off as it was nearly all coming up. This harrowing had made the land comparatively level, and these heavy rains overflowed the entire crop in a sheet of water,

without a perceptible injury to the land. Some of my corn was in sandy, loose land, planted on the top of very high beds, but had not been worked.—The high horizontal beds became so saturated with water, and the subsoil failing to absorb it rapidly enough, they actually slipped, in regular land-slide fashion, down against the bed next below, without even diverting the young corn from its erect, growing position. No system of horizontal culture can survive such freshets. But they do not often occur, and their evil effects must be remedied afterwards, which I propose doing thus: Just where the break first occurs across any bed, a rectangular hole is dug, say eighteen inches wide, and three, four, six, or ten feet long, (as the damage done may require) parallel to the bed, and deep enough to furnish earth to replace the broken places in the next few beds below. The distance between this hole and the next hill-side ditch below is divided into so many equal parts, and at each point of division a similar rectangular hole is dug, furnishing earth for the breaks below, and so on to the ditch. Should the ditch break over, the same kind of hole is dug in the ditch to procure earth for a new bank.—These holes will, in time, be filled up by the constant plowing beside and near them, and by the rain-water draining into them from the adjacent water-furrows, bringing along with it more or less soil or sand. The hole in the ditch will, after the first rain, be filled with excellent soil, to be scattered upon the washed spots below. If such rectangular holes be dug across gullies at small intervals from each other, and the dirt thrown on the lower side, they will rapidly fill up a gully, as the rain will soon fill the holes to their original level, with sand.

GRADE CULTURE.

The Grade culture is best adapted to hill sides and wet spots. If the wet places are higher than the branch, they may sometimes be dried sufficiently for cultivation by deep plowing and a gradual fall given to each row towards the branch. Such places are generally dried by blind ditches. But on hill sides this system is more feasible than the horizontal system, because it is impossible for a horizontal corn or cotton bed, on a steep hill side, to contain all the water that falls into it. In practicing this system of culture, a furrow should be run by the level, with one inch fall to every span of the level, beginning at the highest point of the hill, on the side where the ditches empty, and running in a direction contrary to the course of the ditches. Six or eight beds below this furrow run another in the same direction, crossing ditches, and not stop-

ping until the hill is circled or the bottom reached. Fill in the angle as directed for horizontalizing, and, if short rows occur, they must have a slight inclination in the same direction. The reason for beginning these furrows at the mouths, and not at the source of the ditches is obvious. If a row with one inch fall be begun at the source of a ditch having three inches fall, they must diverge from each other, and a furrow so run from the source of the second ditch, for instance, upon a hill-side, would very soon strike the first ditch above on the lower side, or behind the bank, and, having a descending grade, would empty its water against the bank and form a gully.

There are circumstances under which the horizontal is the most destructive system of culture.—In the first place, if the planter is not indefatigable and unceasingly watchful, all the little breaks over his horizontal beds will soon become gullies, never to be obliterated.

Secondly—If the seasons are too wet, his corn fires, and his cotton grows too much to weed. And if too dry, the roots of both corn and cotton are scorched. During the past season horizontalizing has been injurious to my own crop. An excessive drought of eleven weeks and three days baked the land until any little shower would deposit puddles of water in my horizontal water-furrows, which, when heated by the scorching sun, burnt the surface roots of both corn and cotton.

And thirdly—Horizontalizing requires the planter to be content with moderate crops and an improving plantation, in lieu of large crops and speedy emigration.

THE LEVEL.

The level being among instruments the planters' reliance, a description is probably requisite of the one I use, and so often spoken of in this essay. Several kinds of levels are recommended—some too tedious to handle, and others too complicated for plantation purposes. I use simply a rafter level of twelve feet span, made by my own negro carpenter, and altogether accurate enough for the planter. A plummet is ordinarily attached to this level, but where perfect accuracy is required, a spirit level is *hinged* upon the cross-bar of the level, one end being made stationary by a hinge, and the other free to move up or down.

In using the level, I take with me into the field a small boy, with a hoe. Placing the level where I wish to begin, he is made to dig a hole in front of each foot of the level. Starting in the direction I wish to go, the rear foot of the level is placed where the front foot stood, and as soon as the prop-

er pitch or level is found, "chop," is eried by myself, and the boy digs another hole in front of the foremost foot of the level. This proceeding is continued to the end of the row or ditch. The fresh dirt from these holes can be seen for many yards, and are plowed through by myself, leading my gentlest mule, and a trusty plowman holding the handles. I lead, following the course of the holes, and he holds the plow erect; no line is used at all. I greatly prefer this extra labor to the "gee" and "haw" movements of the very best plowman.—Some planters use little sticks instead of digging holes with the hoe. The hoe is easier carried than an armful of sticks. If the level is followed, and never driven, it will never lead the planter astray.

The third, and probably most important point, in improving lands, is the rotation of crops, and the accumulation and application of manures. A few words will suffice for my views (which is my practice) on these subjects.

ROTATION.

Divide the plantation, as far as practicable, into four equal parts—as many fields as you please.—Upon one of these fourths plant cotton, upon another corn, upon a third small grain (wheat, rye, and oats—let the barley and turnip patches be pet lots near the house), and allow the last fourth to rest.—Prepare this resting fourth properly and thoroughly in the fall, for cotton the next spring. Plant corn next spring, where cotton was this year, and sow small grain this fall upon the corn land of this year. The stubble land of this year rests next year.

A similar rotation may be made of the pet patches near the house. Put one in potatoes, one in barley, and one in turnips; let the fourth rest. Sow turnips on the rested land; follow turnips with barley, and barley with potatoes. Sow peas on the resting land, and when ripe, plow under peas, vine and all.

MANURING.

To improve land by manuring, every vestige of vegetable matter left on the land after harvesting should be plowed under, and nothing should be burned.

If foreign manures are to be used, as guano or the phosphates, they should be rolled in moistened cotton-seed. The lint will absorb the manure, and afford the easiest method of scattering it. This compost, when used on small grain, should be sown broadcast in such quantities as the planter thinks he can best afford it. For cotton or corn it should be drilled. I have always found the heavier the manuring, *ceteribus paribus*, the more abundant the yield.

From thirty to fifty bushels of raw cotton-seed per acre, broadcasted, is fine manuring for small grain; and from twenty to thirty in the drill, is equally good for cotton or corn. My experience is, that cotton-seed, composted with any kind of manure, is more profitable than the same quantity of either applied alone.

All home-made manures should be applied broadcast. A large bulk in this way covers but a small area of ground, but that area is productive for several years, it matters little what is planted upon it. In the drill or in the hill, such manures benefit the immediate crop, but they must be applied often to produce lasting effects.

A minute description of the *modus operandi* necessary to enlarge the manure heaps, does not properly belong to this essay, but the general methods of making manure may not here be inappropriately related.

In the first place, stated times and regular hands should be employed to collect trash, leaves, and litter for every spot where every kind of stock is required to stand or rest, night or day. The stable, the cow-house, the hog-pen, the sheep-house, and the lots surrounding these houses should be regularly littered. When this litter is well trampled in the lots, it should be raked up into large heaps *under shelter*, during dry weather; it should never be touched in wet weather. These heaps composted with cotton-seed early in the spring make the best possible manure for cotton. Stable, cow-house, or sheep-house manure, or all manures made under shelter, should be moved but once, directly from the shelter to the stubble land upon which cotton is to grow the following season. This stubble resting the entire year may be manured or "broken up" whenever time and the seasons will admit. Manure hauled out in dry weather (for in wet weather neither wagon or hoof should enter a field) during the spring, or summer, or fall, and thrown in heaps of ten bushels each, will remain upon this stubble until time can be had to scatter and plow it in, without a material loss of any of its virtues. It is, however, easier and more economical to scatter manure from the wagon, and plow in as scattered.

In the second place, no rainy days should be lost on a plantation, unless the rain falls very heavily and constantly. The simplicity of machinery has superseded the cotton-card and the spinning-wheel, so that it is cheaper to buy than make thread. The time heretofore devoted to such in-door work should be spent making manures—either turning over and pulverizing that already made, or raking trash for new heaps. To expose negroes in this way, how-

ever, is only economy when they are clad for the occasion. An oil suit can be made or purchased cheaply for each hand, which will, in one winter, save time enough to pay for itself, and it will last five or six years.

In the third place, a sink should be dug in some convenient place and sheltered, into which is thrown the chips and trash from the wood-yard, sweepings from the house-yard, slops from the chambers, kitchen and wash tubs, bones, occasionally a little lime, salt and sand, and every dead chicken, pig, turkey, and, in fact, everything useless about a premises that can be made to rot. This sink will furnish the planter annually with an amount of excellent manure, incredible to those who have never tried it.

In the fourth place, no planter should keep more stock than he can conveniently pen every night in summer, or house every night in winter. Too much stock will irrecoverably impoverish any plantation, and be themselves always poor. Just enough stock will furnish droppings and compost manures worth infinitely more than the gleanings of which they have robbed the plantation. Every horse should be made to pay in manure for the fodder and hay he eats during the year; sheep and cattle for the shucks they eat during the winter, and each hog for one-third the corn he eats, after penned for fattening.

And, in the fifth place, if the planter's object be the reclamation of land, nothing should be lost—neither time nor labor; nor must he lack judgment or energy. Indeed, he must possess all the cardinal virtues. Patience must be added to his perseverance, idleness subtracted from his industry, carefulness multiplied by his vigilance, and his expenditures divided by economy.

Respectfully submitted,

D. WYATT AIKEN.

GREAT CORN IN INDIANA.—At the late Indiana State Fair, the first premium was awarded to a citizen of Dearborn county, who presented the necessary affidavits that his field of ten acres produced, on an average, one hundred and seventy-four bushels to the acre. On the best five acres, the first premium was awarded one hundred and eighty-six bushels to the acre, and the same person had incontestible evidence that on one of these acres there grew two hundred and fourteen bushels.

Mischief is not found in the tongue, the eyes, or the hands—but in the heart.

A truly grateful heart may not be able to tell its gratitude, but it can feel, and love, and act.

The strength which the hour of trial brings often makes the Christian a wonder to himself.

For the Farmer and Planter.

THE FARMER vs. THE PLANTER.

MR. EDITOR:—Believing in agriculture as a system based upon scientific principles, I have been a steady reader of agricultural publications, and have been no little disappointed to find how little, among *planters*, the lucid demonstrations of chemistry have done to develop a taste for analysis and experiment, with a view to the elucidation of truth—the establishment of *facts*. What a mass of valuable information would be accumulated annually if each planter would direct his personal observation to but a single object, and by numerous tests and experiments, establish, beyond cavil or dispute, *facts*, which could be recorded as *axioms* in agriculture! One generation would thus secure fixed rules of practice to guide their successors. Beginners could commence where their predecessors ended, and thus save much valuable time and labor in investigations already made, in the establishment of principles already determined. Why is it that so few give heed to the lessons of experience, and that there is such a deep-rooted and abiding prejudice against *book* teaching in agriculture? We have investigated this matter, so far as the *rice planter* is concerned, and have reached conclusions satisfactory, to ourself at least, which we will make bold to record. The rice planter, it is well known, cultivates the *tide* lands skirting the rivers and water courses near the seacoast. They have been justly esteemed as unsafe for permanent residences, and most of the proprietors are consequently absentees from May to November. Their planting interests are supervised by a class of men known as overseers, most of whom are industrious and faithful men, of good, sound common sense and observation, but uneducated—with little fondness for reading, and unpractised in the habit of noting, by *written* memoranda, the details and results of their labor. They are not averse to learning—they are not reluctant to *take* an agricultural journal, but they soon weary of its pages, for most that is written is beyond their digestion—they don't understand it. Now the remedy for this is with the employer. The overseer should be the *assistant* and not the *principal*. The proprietor should bring into exercise his better education, and apply the principles, whilst his assistant should follow up in detail the results, noting accurately all the minutiae, so that in forming *ultimate conclusions*, they may both arrive at satisfactory deductions.—The more just and scientific processes elaborated by the reflection of the educated proprietor, will explain and harmonize what, to his less fortunate assistant, might appear crudities, or the offspring of

chance. Ignorance would be dissipated by the lights of reason; without condescension, the *planter* would become the *benefactor*, the overseer become the *friend*, and both planter and overseer, honest votaries of science, would join heartily and zealously in the proud work of agricultural improvement. But what is the condition, as to facts? The absentee leaves the entire management of his estate to the overseer. He is in no degree interested, beyond the annual income to his credit in factor's hands.—He seldom or never walks over his fields, gives no attention to the process by which his lands are cultivated, has not the slightest idea of *permanent* improvements, allows each succeeding overseer (for they are migratory in their habits) to cut and carve according to his individual notions, with a single eye to the growing crop, feeling but the one security, that is, if his overseer fails in making him good crops, he can dismiss him and get another.

Now, Mr. Editor, the picture drawn does not include *all* absentees. There are many always who leave their plantations with reluctance, and welcome the day of their return. But all of them take too little interest in the education of their overseers—bestow too little attention to details when at home, and exact too little of their overseers during their absence. We contend that each field cultivated should be noted, (its preparation, planting, cultivation, harvesting, threshing, product, &c.,) just as regularly as though it were to be put in competition for a prize. That a book of record should be kept and preserved on each plantation, showing the above and all other details, necessary to a satisfactory review by the proprietor or succeeding overseers. It would afford pleasant and profitable reference at all times, and would prove the very best system for *training* overseers to observation and reflection, and method in their work. Seasons have much to do with the products of cropping. They should also be accurately noted, so as to give every circumstance its proper influence in summing up results, that the *truth demonstrated*, the *rule fixed*, the *axiom*, to be placed upon final record, may indeed prove *the lesson of experience*. All such lessons are worthy of *publication*, no matter how humble the source from whence derived. Let us for a moment refer back to those names which stand pre-eminent as indelibly associated with the most permanent suggestions in rice culture. Jordan Myrick, John Hayes Allston, Archibald Ligett, a noble link in the chain of *triads*, were all *overseers*. Each has left his name stamped with the work of his own master spirit, and their *systems* have gone upon the record as worthy the imitation of all their succes-

sors. Myrick's success in embankment and drainage, Allston's discovery of the use of clay in the "open trench" system, and Ligett's bold and consummate skill in the "water culture," have done more for the tide lands than the labors of all others combined, to whose experience we have been permitted to refer. But they were dominant spirits—men of marked will and sagacity, proud standard bearers, towering above the crowd of co-laborers, whose equals are not to be found on the every day page of history. True, yet they were *uneducated overseers*, who conferred lasting benefits and reflected honor upon their profession, and may well be held up as shining marks for the ambition of others.

But, Mr. Editor, to go back to the rice planter, as I have described him. A man who owns his hundreds of acres, but who really does not know rice from grass, in the growing blade—a man who perchance may own his pounding mill too, but who really does not know practically the brush screw from the hopper, to call such a man a *planter* is quite a misnomer. He is the landlord, the dignified proprietor, but not the *planter* surely, in the sense that we should conceive him, *as an agriculturist*.

Look over your subscription list, Mr. Editor, and see how few of these rice planters are on the roll, and if there, how much smaller the proportion of those who read or converse about what they read in your valuable monthly. The facts of the case are simply these: The *Farmer and Planter* has been deemed worthy of my special consideration, and as the only agricultural paper in the State, I have been more than solicitous in its behalf. Now the very title, "*Farmer and Planter*," should have its influence, but hard it is to make the rice planter believe that your *book* is published for him. He ignores the idea that *farming and planting* are at all compatible, and with an aristocratic shrug, when asked to subscribe for himself and his overseer, he intimates that his overseer does not believe in *book* planting. So far from correcting this prejudice, he is actually encouraging it, and the overseer's loyalty will not permit him to gainsay what his superior has uttered. For fear of being tedious, we will leave them here for the present, but ere another month we will visit our neighbors and give you a true picture of things as we find them where *book* management is so emphatically ignored. Meantime subscribe me,

Your friend and servant,

A PLANTER AND FARMER.

It is an economical reflection that when garments are too short, the difficulty may be remedied by wearing them longer.

For the Farmer and Planter.

NECESSITY OF IMPROVING OUR AGRICULTURE.

MR. EDITOR:—It is a very rainy day, and I will try to give the benefit of it, as far as anything I can write can do so, to the *Farmer and Planter*. I am sorry to see that it is not sufficiently sustained, and hope, for the credit of the State of South Carolina, this will be so no longer. It ought, indeed, to make the cheeks of the farmers and planters of this good old State tingle with shame, if it shall appear that she cannot support one agricultural paper. Forbid it, State pride—forbid it everything that is manly and worthy in the name of Farmer and Planter!—The condition of agriculture in South Carolina is that of a sick man, “a very sick man.” We have doctors enough, and who profess to understand her case, and each offers an infallible remedy, a specific remedy, just suited to the case. But our people have grown distrustful of patent nostrums, of offers of patriotic and charitable aid. They are coming to the conclusion that it is “all humbug.” Now, Mr. Editor, this is a bad state of affairs. But why is it so? Aristotle told Alexander “there is no royal way to mathematics.” There is no “high cut” to good farming. We are apt to forget that “experience teaches” that we ought to try all things, and hold fast that which is good. We are apt to grow weary of the details and minutiae of our business, and “jump” to a conclusion. We trust too much to agents, as if we could learn to farm by proxy. We forget that while the overseer substitutes us in practice, he substitutes us also in the knowledge we ought to acquire. These are some of the causes which retard our progress; but these are not all; the public mind is distempered. We indulge in all kinds of schemes and wild projects; we build railroads for the people of other States; we build palatial State Houses, and fine court houses, cities and villages; in a word, we load ourselves with heavy and unprofitable burdens, and then complain that we can’t get along. This is treating the fevered patient with brandy—the more you give him the hotter he gets—the more you stimulate him the more prostrate he is.

Now, suppose for a moment we reverse our course. Suppose instead of *concentrating* our efforts on these objects we *individualize* them, and turn them, each one of us, to his own farm, what think you would be the result? Suppose each one of us should not only exert his influence by giving an example of good farming, but by publishing for the benefit of the country his ripe experience, he should contribute to the stock of useful knowledge, what think you would be the result? Is not the case a plain one?—

NEW SERIES, VOL. II.—6

Would not all the conveniences and even embellishments of life grow, as a natural consequence, out of this course? Would not railroads, cities and villages, as they are needed, spring up spontaneously as a growth natural to such a soil—useful, because they are called for—permanent, because they rest upon a solid foundation?

But, Mr. Editor, what good will it do us if the whole world should bring its surplus to our doors for exchange, if we have not a surplus of equal value to exchange for them? What good would it do us if the surplus produce of the teeming valleys of the great father of waters should find a transit through our State to the waters of the Atlantic, if we have not equal values to give in exchange? No; *we must begin at home—we must look to our soil*—it is there alone that we must look for real values—for the products with which we may buy what we need.

And now, my good brother farmers, we have the matter in a nut-shell; we have removed the suckers and foliage that obstructed our view, and our way is clear. Nothing remains now, but that we *go to work*; *let us improve our lands*; this is the chief cornerstone—this is the foundation on which we must build. We must improve our lands first, and mainly by compost manures. We must study all the best modes of making compost. We must raise our own stock, and by their aid and the help of leaves and mould, make a rich compost. We must add such other things as may be had conveniently, and experience has proved to be useful. We must not neglect guano, and other so-called concentrated manures. We should try them cautiously, and in small quantities at first, and finally use them only to the extent we find them profitable. They are at best secondary and doubtful aids, but we should test them sufficiently to know their real value. We should improve our lands, secondly, by deep plowing and thorough pulverization, and occasionally by rest.—Compost manure, deep plowing, and a heavy coat of vegetable matter turned under after a rest, will not only sustain, but improve our lands. All this is said under the impression that it is already well drained, grade-ditched, and plowed horizontally.

But we must not only improve our lands—we must improve our modes of culture. We must break up deep, and, where there is a heavy stubble, early in the fall or winter. The early culture may also be deep, but when the roots have extended themselves through the beds, the culture should be shallow—chiefly with the sweep and hoe. No doubt much damage may be done at this stage by deep plowing. In fact, it is a question worth considering whether, in the cultivation of our crops, we do not

plow too much? whether we should not plow more before planting, and less after? European practices would seem to indicate that we do.

This is a wide field into which I have entered, and you know, Mr. Editor, none better, that I could only glance at some parts of it in a short essay like this. I will only add, I should be happy to believe I had interested, if not instructed, some of your readers. I could go on to deplore the emigration that flows from our beloved State, and enlarge on kindred subjects, but I have pointed out the true seat of the disease, and if I have not pointed out the true remedy, there will be plenty of doctors found to point out the true cure.

LAURENS.

BENEFIT OF DROUGHT ON THE SOIL.

A drought acts upon the moisture in the earth as follows: During dry weather, a continual evaporation takes place from the surface soil above that supplied by rain and dew, which creates a vacuum (so far as the water in the surface soil is concerned,) that is at once filled by water rising from the subsoil—extending deeper and deeper as the drought continues and the moisture is exhaled—a circulation of water in the earth the reverse of that which takes place in wet weather. This progress to the surface of water in the earth, manifests itself strikingly in the drying up of springs and wells, and streams which are supported by springs.

Not only is water thus brought to the surface of the earth, but also all that the water holds in solution. There are salts of lime and magnesia, of potash and soda, or indeed whatever the subsoil or top strata of the earth may contain. The water on reaching the surface is evaporated, but leaves behind its lime and potash, its phosphates, silicates, carbonates, and salts—all indispensable to the growth of the vegetable products of the farm.—Rain water, as it falls, will dissolve but a very small portion of some of those substances; but when it sinks into the earth, it then becomes strongly imbued with carbonic acid from the decomposition of vegetable matter in the soil, and thus acquires the property of readily dissolving minerals on which before it could have little effect.

Several experiments tried by Prof. Higgins, go to show this action of drought in bringing mineral water from a depth to the surface of the soil. In one case he placed a solution of chloride of barium in the bottom of a glass cylinder, and then filled it with dry soil. After long exposure to the rays of the sun, the surface of the soil was tested with sulphuric acid, and gave a copious precipitate of sulphate of baryta. Chloride of lime, sulphate of soda, and carbonate of potash, were experimented upon in like manner, and upon the application of proper tests, the surface of the soils showed their presence in large quantities, drawn up by the rising of water from underneath, as in the case of drought.

The parched earth—all vegetation dwarfed and withered by the heat—seems suffering under a curse but it is only an affliction for the present—"a blessing in disguise" for the future. The early and lat-

ter rain, may produce at once abundant crops, but dry weather is needed to bring to the surface from the depths of the earth, where else it would be forever unemployed, food for future harvests. It is Nature's ordinance for keeping up the fertility of the cultivated soil.—*Country Gentleman.*

From the Valley Farmer.

ON THE COMPARATIVE PRODUCTIVE CAPACITY OF SOILS.

In the October number of the *Valley Farmer* we published an article upon the "Exhaustion of Soils in the Cultivation of Wheat and Corn," as shown by the chemical investigation into the composition of the ashes of each, by Dr. Robert Peter, of Lexington, Kentucky. In the conclusion of that article we promised to show, at some future time, from the data furnished by the analyses of Dr. Peter, the period required to exhaust the several ingredients contained in these soils, under the usual mode of cultivation.

Since the preparation of that article, we have been favored by Dr. Peter with tables giving a comparative view of the composition of some of the soils of Kentucky, taken from different regions, and analyzed by him in pursuance of the Geological Survey of the State; adding that of a soil from Iowa for more complete comparison; with the intention of showing how long average crops of wheat and corn could, theoretically, be produced and removed from them, (provided the essential ingredients were not otherwise wasted,) before they become entirely exhausted. It will be seen, from the following, that Dr. Peter has made no estimate of the immense loss to which these ingredients are exposed in the ordinary processes of cultivation, by the washing of excessive rains, nor of the loss of essential, organic constituents of these soils by the same cause. It is well known that there are certain kinds of soil, such as are found upon some of the rolling lands of Kentucky, and indeed in almost every State, where nearly the entire surface of the more elevated portions of the land, under the ordinary course of cultivation, in a very few years will be carried by the rains, through gullies, into the valleys below. The continued cultivation of corn, year after year, and of cotton, as practiced in Mississippi and other States, has in this way entirely ruined thousands of acres beyond the possibility of redemption. It is true that, in order to check this waste in some degree in some of these States, certain improvements have been adopted in the mode of cultivation—such as plowing around the hills in horizontal lines, and in alternating grass and grain crops with summer cultivated crops. We merely allude to these causes of the rapid waste of certain soils, in order to remind the reader that however richly his lands may be stored with the mineral constituents of crops, without the most judicious and careful course of cultivation, his lands will be worn out in a much shorter period of time than is indicated by the single process referred to by Dr. Peter, as contained in the crops taken from the soil.

The selections of the soils made for the purpose, and examined by Dr. Peter, are here given, and numbered as in the following table, viz:

"No. 1. Virgin soil, from the top of a ridge on

the southern edge of Owen County, Kentucky.—*Lower silurian formation.*

"No. 2. Virgin soil, from the dividing ridge between Estill and Powell, and Owsley and Powell counties, near Standing Rock, Kentucky. *On the millstone grit formation.*

"No. 3. Virgin soil, from upper Des Moines river, below Lizard Point, near Correction Line, Iowa.—*On upper silurian formation.*

"No. 4. Virgin soil, from Jefferson County, on Bear Grass Creek, six miles east of Louisville, Ky. *Upper silurian formation.* Best Bear grass land.

"No. 5. Virgin soil, from near Winchester, Clark County, Ky. *Lower silurian limestone formation.* Best 'Blue-grass' land.

"The composition of these soils, 100 parts of each having been analysed in the manner I have described in the third volume of reports on the Geology of Kentucky, each previously dried at the temperature of 400 degrees, I give, in a tabular form, as follows, viz:

	Soil 1.	Soil 2.	Soil 3.	Soil 4.	Soil 5.
Organic and Volatile matters,	4.865	2.680	2.606	5.173	9.028
Alumina,	2.695	3.220	2.285	2.900	6.565
Oxide of Iron,	2.810	1.485	2.110	3.085	5.600
Carbonate of Lime,	a trace,*	.021	.445	.370	.545
Magnesia,	.514	.297	.561	.719	.687
Brown Oxide of Manganese,	—	.110	.071	.395	.545
Phosphoric Acid,	.086	.128	.062	.203	.366
Sulphuric Acid,	—	trace	.058	.076	.084
Potash,	.094	.166	.323	.208	.475
Soda,	—	.064	.063	.154	.124
Sand and insoluble Silicates,	88.020	92.095	91.595	86.370	76.070
Loss,	.736	—	—	.347	—
	100.000	100.266	100.179	100.000	100.089

* Say 0.005.

"These soils were principally collected by Dr. D. D. Owen, during the progress of the Geological Survey of Kentucky. That from Iowa was obtained by him during his survey in the northwest, under the patronage of the general government; and that from the millstone grit ridge between Estill, Owsley and Powell counties, Ky., was sent me by Jos. Lesley, Jr., Esq., chief of one of the topographical and geological parties now in the field of the Kentucky Survey.

"If a cubic foot of compact, dry soil weighs about 71½ lbs, as was found to be the case with some Fayette County soil weighed, then the soil in the 4,356

square feet of an acre of ground, taken to the depth of one foot, will weigh more than three millions of pounds. Assuming this as the weight of the soil which is subjected to ordinary culture by the plow, on an acre of land, and discarding from our calculation the fractions and all but the more essential ingredients of the soil, we find the following quantities in pounds, avoirdupois, to be contained in the acre, in these five different specimens, viz:

	Soil 1.	2.	3.	4.	5.
	lbs.	lbs.	lbs.	lbs.	lbs.
Potash,	2,820	4,980	9,690	6,240	14,250
Lime (not Carb'te.)	84	353	7,492	623	922
Magnesia,	15,420	8,910	16,800	21,570	20,600
Phosphoric Acid,	2,580	3,840	1,820	6,090	10,980

"Now supposing these ingredients be consumed only in the production of crops of wheat or corn, in the quantities given above, i. e., 20 bushels of wheat or 50 bushels of corn per annum, and that nothing but the grain be carried away from the ground; these various ingredients would last for the number of years given in the following table:

	In Soil No. 1.	In Soil No. 2.	In Soil No. 3.	In Soil No. 4.	In Soil No. 5.
	Wheat Crop.	Wheat Crop.	Wheat Crop.	Wheat Crop.	Wheat Crop.
	Yrs.	Yrs.	Yrs.	Yrs.	Yrs.
Potash will last,	517	617	1,778	1,145	1,755
" Lime "	51	1,649	4,591	3,816	4,267
" Magnesia "	5,361	2,471	6,937	8,898	5,998
Phosph. Acid "	282	324	199	514	927

"Although it is obvious that calculations like the above can only be roughly approximative, yet they are, to a certain extent, instructive. There are many reasons why such calculations cannot approach to accuracy, one of which I will state.

1st. the difficulties and inaccuracies of chemical analysis, where *minute* quantities of essential ingredients are to be eliminated from large proportions

of other, less valuable materials; where the quantity submitted to analysis is necessarily small. Take, for example, the *Carbonate of Lime* in Soil No. 1. In the actual analysis of that soil, this ingredient was found to exist in quantity so small that it could not be weighed accurately with the most delicate balance; yet a small *trace* was contained in it, enough to supply this ingredient to plants growing on the soil. Suppose we *assume*, as we have done above, that this quantity is 0.005 of one per cent. of *Carbonate of Lime*; equal to a little more than half as much *Lime*, or .0028 of one per cent.; we find on calculation, that this quantity, amounting to only 1.35612 part of the whole soil, is yet equal to 48 lbs of lime to the acre, and is enough, theoretically, to supply a corn crop of 50 bushels to the acre, for 398 years! or a wheat crop of 20 bushels per acre, for 51 years! It is obvious, in the second place, that when we apply the results of our analysis to the amount of soil contained on an acre of land, the errors, if any are present, are enormously multiplied.

"But another and more weighty reason why we cannot predict the durability of the fertility of any soil from a knowledge of its ingredients, is, that these ingredients are removed from it by other means than the crops grown on it, as we will endeavor to explain.

"In the numerous analyses of Kentucky soils which have been made in my laboratory, during the progress of the Geological Survey, it has almost invariably been ascertained, that the quantities of the essential ingredients of a soil which has been for some years in cultivation, are not only smaller than those in the virgin soil of the same immediate vicinity, *but that the deficiency is greater than can be accounted for in the crops removed from it.*

Rich, virgin soil, containing much organic matter, and yielding a large proportion of *soluble extract* to the atmospheric water falling on it, is more rapidly reduced in fertility than we might suppose, if we merely study the composition of the crops; for this reason, mainly, that a great deal of this *soluble matter*, containing the most valuable ingredients, is necessarily decomposed and *washed out* of it.

"When thickly coated with growing grasses or other wild vegetables, the surface soil maintains or even increases its fertility; because the roots of these plants are continually absorbing the soluble materials, employing them in the elaboration of their tissues, and finally leaving them on the surface at their depth; but many intervals of *space* and of *time* occur, in the cultivation of the ordinary crops, through which the falling rains, &c., may wash away more or less of the soluble matter of our soil.

"In the third place, calculations like the above can only be roughly approximative, because not only must an essential ingredient of a plant be present in a soil before it can grow on it, but this ingredient must also be in a *soluble condition* for absorption into the tissues of the vegetable. Take, for example, the one common ingredient, always present in large proportion in all soils, the *Silica*. By reference to the above table representing the

composition of the soils, it will be seen to be present in proportions varying from 76 to 92 per cent. in round numbers; and yet it may and does happen that a grain crop (which requires much silica in its straw) may actually fail, on just such soil, because the silica, although very abundant, is not in a *soluble condition*.

"In the fourth place, such calculations as the above would fail in practice, because, as the essential ingredients of a soil decrease in quantity, the crops fall off in *much more rapid ratio*.

"Knowing the fact that every one of the essential mineral elements of plants is absolutely necessary to their growth, it is evident that the duration of the fertility of any soil is limited to that of its smallest ingredient. For example, although soil No. 1 (of the preceding tables,) contains *Potash* enough to supply, theoretically, an average wheat crop for 517 years, and *Phosphoric Acid* enough to supply the same for 282 years, yet its capability of bearing this crop is limited to 51 years by the small proportion of *Lime* which it contains. The addition of lime alone would very greatly prolong its ability to bear wheat. So, in regard to the rich prairie soil No. 3: its *Potash* would last 1,203 years and its *Lime* 34,900, if restricted to corn crops of 50 bushels to the acre per annum; but it could not yield this corn crop for more than 153 years, for want of *Phosphoric Acid*; yet, after this term, the application of bone dust, or guano, or some other manures containing phosphoric acid, would make it fertile again for corn."

From the Southern Planter.

EXPERIENCE IN THE USE OF FERTILIZERS.

KING WILLIAM Co., Sept. 6th, 1859.

MR. EDITOR:—It is so seldom that my name or that of any other farmer from the county of King William is seen in the *Planter*, that I hope you and the kind readers of your invaluable periodical will pardon me for a few remarks, in which I wish to give my observation and experience as to the use and comparative effects of various kinds of fertilizers, artificial and natural.

When Peruvian Guano was first introduced in this country, its superiority over all others manures was not questioned, and the farmer bought it at a remunerating price. In consequence of the increased demand for the article, and the monopoly of sale held by the Peruvian Government, the price rose—several other guano deposits were discovered in the meantime, but upon analysis none were found so rich in ammonia as that brought from the coast of Peru—and hence did not meet with so ready a sale. At this juncture the manufacturer steps in between the grumbling farmer and the Peruvian Government, and says to him, I can sell you a compound fertilizer at a reduced price, in all respects equal, if not superior to Peruvian guano.

Messrs. A., B. & C., advertise for sale "Manipulated Guano," warranted to contain 8 per cent. of ammonia, and from 40 to 50 per cent. of phosphate of lime, and equal to any fertilizer ever offered in market.

Messrs. D., E. & F., invite the farmers to buy their "Phospho Peruvian Guano," (warranted to

contain 8 per cent. of ammonia, and 45 per cent. of phosphate of lime) in preference to Peruvian, because it is less costly, more permanent in effects, &c.

Messrs. G. & H. call the attention of the farmers particularly to their regularly analyzed and warranted article called "Super-phosphate of Lime."

Some samples of the above fertilizers are analyzed by scientific men, and found to contain the per cent. of ammonia and phosphate of lime, or other ingredients that the manufacturer warrants them to contain.

Now, I appeal to you, fellow-farmer, to say if, under existing circumstances, you are not bewildered in your choice of a fertilizer that will, most probably, increase your crops, and add fertility to your soil. If you will follow my advice, you can be relieved of your bewilderment without any risk. I would say to you, *purchase a fertilizer neither of Messrs. A., D. or G., or of the Peruvian Government, but pursue the five or six-field system of cultivation, and buy lime (if accessible) and sow peas and clover.* By this judicious mode of farming you will not only increase the productiveness of your land, at comparatively little expense, but vastly enhance the value of it, so that your children and grand-children may reap an abundant harvest, and look back with pleasure and pride at the husbandry of their fore-fathers.

Suppose your soil is deficient in calcareous matter, as is the case with most soils in this section of Virginia, and lime or marl is not accessible. In this emergency I would say to the farmer, (provided he has much poor land, like myself,) *buy sparingly* of some kind of fertilizer. What kind of fertilizer he should buy, I am somewhat puzzled about giving advice, but will give my observation and experience, and let him decide for himself—and first, as to DeBurg's super-phosphate of lime. In the fall of 1856, I bought of Ed. Wortham & Co., Richmond, Va., agents for DeBurg, six tons super-phosphate of lime. I applied it on a piece of fallowed land, at the rate of 300 pounds per acre, and harrowed it in with the wheat. On an adjacent portion of land, I applied Peruvian Guano, at the rate of 150 pounds per acre. On another portion of adjacent land I applied no fertilizer. There was but little difference in the quality or texture of the soil experimented upon.—The effect from the Peruvian Guano was very apparent, but the effect from the super-phosphate of lime was not visible, nor have I ever perceived, since that time, that the land has been benefitted. The same field is in corn this year, and the corn on that portion covered with super-phosphate of lime in 1856, is no better than the rest. My observation, in several instances, coincides with my sad experience.—As to Rhodes' super-phosphate, and others, I can say nothing, as I have never seen any tried. The fall of 1857 I was afraid to make another experiment with a manipulated fertilizer, and consequently purchased altogether Peruvian Guano, which would have had a fine effect on the wheat crop, but for the rust and scab which seriously affected most of the wheat crops in this section.

In the fall of 1858 I bought four tons of Elide Guano, two tons of Peruvian Guano, and two tons of Kettlewell's Manipulated Guano. I made several experiments with these guanoes. The first experi-

ment was on six acres of land of same quality. On one-third of it I applied Elide Guano—on one-third Peruvian, and the remaining third Kettlewell's Manipulated Guano. On each portion the guano was sown broadcast and harrowed in with the wheat. During the winter and early part of the spring the Elide Guano looked better than the Peruvian—but at the time of harvesting I could see no difference. Kettlewell's Manipulated Guano never looked as well at any time as either of the two other kinds, and the difference was very perceptible about harvest time. The same quantity of each kind of guano was used in the experiment. I did not measure the wheat from each portion of land, as I was satisfied as to the result of the experiment without it.

The rest of my Kettlewell's guano was drilled with the wheat, at the rate of about 175 pounds per acre. The effect on the wheat was very visible, but fell far short of my expectation. A piece of land of inferior quality to that drilled with manipulated guano, was sown broadcast, with a mixture of one-third Peruvian and two-thirds Elide Guano, and the wheat drilled by itself. The wheat on this land was much better than on that to which Kettlewell's Manipulated Guano had been applied, although the last was applied in the drill, and the first sown broadcast with a less quantity per acre.

I made another experiment, to see whether Peruvian by itself, or Peruvian mixed with Elide Guano was the best; but could see but little, if any, difference between the two. A portion of land covered with a heavy pea fallow produced more wheat and of better quality than any of the land covered with mixed, or manipulated, or Peruvian Guano. My mixed guano was composed of one-third Peruvian and two-thirds Elide Guano, which made a ton of the mixture cost \$46 66 $\frac{2}{3}$, estimating the Peruvian at \$60, and the Elide at \$40, the price I paid for each. Kettlewell's Manipulated Guano cost \$47 50, per ton, although 200 pounds per acre was not so beneficial as 150 pounds of my mixed guano. I saw one crop of wheat this year on which Kettlewell's Manipulated Guano had been applied at the rate of 200 pounds per acre, and the owner of the crop and myself, both agreed in the opinion that the application did the wheat crop no good. However, I have heard of some applications of this fertilizer that proved more satisfactory.

Although I was pleased with the effects of Elide guano, still I would not advise the purchase of it, because of the wet condition it comes in, which renders it difficult to sow; and besides, the ammonia escapes from it very fast, if exposed for a length of time, as tested by some that I kept through the winter.

I have never tried any of Reese's Manipulated Guano, but I saw one experiment made with it in 1857, with which I was very much pleased. In that instance Peruvian and Reese's Guano were sown side by side, and I could see no difference. I have seen others who made experiments with it, and did not like it so well.

Mr. Frank Ruffin has commenced the manufacture of a manipulated guano in the city of Richmond; and the farmers wishing to buy a manipulated article, I would advise to buy it of him, as I

know him well personally, and what he says can be relied on. I am certain he would not intentionally deceive the farming community. I have been through his establishment, and was pleased with the process of manipulation and the quality of ingredients used. I have purchased two tons of Ruffin's Manipulated Guano, and mean to give it a fair trial, with Peruvian, and a mixture of Peruvian and American Guano. So, Mr. Editor, you may probably hear a little more of my "observation and experience as to the use of fertilizers" next fall, if you are not sick of it already.

PAMUNKEY.

From the Field and Fireside.

PRESENT CONDITION OF AMERICAN AGRICULTURE.

The November number of the *Working Farmer* has an article on "The Present Condition of American Agriculture," credited to the London *Farmer's Magazine*, which we have good reason to believe was written by one of the editors of the *Working Farmer*, and sent to England for its publication, as containing a truthful and instructive account of "American Agriculture." Feeling considerable interest in the character and reputation of that large class of citizens who own and cultivate the soil of the United States, regardless of geographical lines, we have read with some care the letters of the American correspondent of the London *Farmer's Magazine*, and we are sorry to say they do great injustice to the subject discussed, and especially to Southern agriculture and slave labor. We copy the following from page 255 of the *Working Farmer*:

"That Virginia, for the settlement of whose domain Raleigh labored so long and so earnestly, and which was once the queen of all the sisters of the confederacy, should, with 75,000 illiterate inhabitants, and about 3,000 copies of her agricultural paper in circulation, be reduced to the very verge of sterility and decay, will surprise no one *who has studied the inevitable consequences of cultivation by slave labor.*"

That the above statement, made alike to the people of Great Britain and this country, contains a most pregnant and injurious error, we religiously believe, and feel abundantly able to prove, so far as it is possible to prove any negative proposition. The readers of a London agricultural magazine of high character and long standing, are told by an American agricultural writer, that "the inevitable consequence of cultivation by slave labor," is "to reduce a State to the very verge of sterility and decay," and compel its inhabitants to become alike "illiterate" and poverty-stricken. This is a serious and even a terrible charge to bring against the agricultural industry of some fourteen or fifteen sovereign States; and we submit the question to an impartial world, (if any such world exists, which is doubtful,) whether the *misuse* of any kind of labor, of money, or other property, or the *abuse* of anything involves "inevitably" the condemnation of the thing, the property, money, or labor, wrongfully, or mistakenly employed? It is the want of adequate and abundant labor in the old State of Virginia, to improve the soil and cultivate it properly, and not the existence of slaves, that places her til-

lage in a false position. The demand for laborers to go South, has been so great and exhausting, that no farmer could afford to keep slaves enough to do full justice to his farm, and Virginia agriculture.

Field hands, that cannot earn over \$150 a year each, in the Old Dominion, will earn from \$300 to \$450 in the best cotton, rice, and sugar districts in the South and Southwest, while the expense of taking a negro from Richmond to Alabama, Mississippi or Texas, will rarely exceed from \$25 to \$35. Indeed, as was well stated by Mr. Hull, in his late agricultural address, no man can afford to work slaves and make only three and a half bales to the hand, when for ten or fifteen dollars a head his negroes may be taken to land that will yield seven bales or more to the hand; and the higher cotton is, the larger the premium offered to abandon old plantations, and all poor soils, and concentrate the entire force on rich virgin land. These facts cannot be refuted; and they prove beyond the reach of a reasonable doubt, that there are not slaves enough to cultivate, *at once and properly*, the fields of all the Northern and all the Southern slaveholding States. Give Alabama, Mississippi, Florida, Louisiana, Arkansas, and the broad and fertile domain of Texas, what slaves their agriculture demands for its full development, and not one woolly-head will remain in all the South out of those States.

Suppose a man should undertake to haul constantly what was a fair load for five mules, with two? He would naturally drive hard, wear out his team prematurely, make it look poor, mean, and worthless, and, after fretting for years at the weakness and inefficiency of his force, he might himself adopt the equally false and popular notion that mules are inferior to horses for all hauling purposes. Virginia has never had more than two-fifths as many slaves as the load to be hauled, or work to be done, required; and because those she did have failed to work a miracle, and each two perform the labor of five, every defect in her agriculture is charged as "the inevitable consequence of slave labor."

"Truth is mighty, and will prevail," and this is very near the exact truth. Slavery was hastily condemned eighty years ago; was tried afterwards; and, when fairly tried, was found Not Guilty.—But how shall we reverse the unjust verdict of condemnation?

Can it be done by pursuing a policy which originated in hostility to the institution—which invokes both the moral power and material aid of England, France, and all Europe, to crush it as a detestable thing, no better than piracy? If this condemnation is known to be, and felt to be unjust, why keep Virginia agriculture in a false position before the civilized world, in London journalism, to the serious detriment of Southern intelligence and character, and literally compel the noble mother of States to part with all her slaves, and depend exclusively on white laborers, who will vote ever with the North? Is it not time that we modify somewhat our present system of planting industry, and employ a part of our capital in sheep-husbandry and wool-growing, in which far less labor is needed, and of course no slaves from Virginia to prosecute the business sue-

cessfully? The concentration of slaves on a comparatively small area, by exclusive planting, is a virtual surrender of about two-thirds of all our present slave territory to freesoil labor, and its influence. This weighty fact has been too little considered. Every man who buys a slave from Maryland, Virginia, Kentucky or Missouri, opens the door a little wider, and invites free soil voters to settle in these States for agricultural purposes. Laborers they must and will have; and, we ask, in all earnestness, where they are to come from? It is absurd to suppose that two negroes will perform the work of ten, or even five. It is suicidal to place slave labor in all the border States in this alike unjust and disadvantageous position. Our agricultural employments must be more diversified—spreading slave labor over many millions of acres of grazing lands—instead of crowding more and more negroes into a few cotton fields.

The writer who attempts to describe for a foreign magazine "the present condition of American Agriculture," betrays as little knowledge of his subject in the Northern as in the Southern States. He lauds Mr. Mapes and his *Working Farmer* most extravagantly, while he ignores the existence of the *American Agriculturist*, an older and far abler journal, with some four or five times larger circulation. It is with no inconsiderable reluctance that we ever expose agricultural quackery like that of the Patent Office and *Working Farmer*; for, by it we make bitter personal enemies, and receive little or no thanks from the public. Not one man in a thousand has any idea of the amount of cheating now successfully practiced by selling nearly worthless articles under every conceivable false pretense as being of peculiar and great value. In the whole catalogue of agricultural humbugs, perhaps there is no more ridiculous than that based on the notion that an atom of potash, or one of sulphur, phosphorous or nitrogen, is "progressed" and improved every time it forms a part of a living organism, as taught by the manufacturer of "Mapes' Nitrogenized Super-Phosphate of Lime."

ENGAGING MANNERS.—There are a thousand pretty, engaging little ways, which every person may put on, without running the risk of being deemed either affected or fopish. The sweet smile, the quiet, cordial bow, the earnest movement in addressing a friend, or, more especially, a stranger, whom one may recommend to our good regards, the inquiring glance, the graceful attention, which is so captivating, when united with self-possession—these will insure us the good regards of even a churl. Above all, there is a certain softness of manner which should be cultivated, and which, in either man or woman, adds a charm that always entirely compensates for lack of beauty.—*Taylor.*

BE PREPARED.—No man knows what mercies a day may bring forth, what miseries what good or what evil, what affliction, what temptation, what liberty, what bonds, what good success, or what bad success, a day may bring forth; and, therefore, a man need every day be in his closet with God, that he may be prepared and fitted to entertain and improve all the occurrences, successes and emergencies which may attend him in the course of his life.—*Thomas Brooks.*

GALLS AND WOUNDS ON HORSES.

Galls on the Skin.—A horse newly put to work, and working in a new harness, or under a new saddle, which touches parts not inured to the pressure, is very likely to have the skin of the back and shoulders abraded.

Unless there is an absolute necessity for the animal to be used, he should, in all cases, be allowed a few days rest, that the wound may heal and become somewhat hard; even then, until the hair has fairly grown out, the greatest care must be used to see that the chafing of the harness is entirely obviated, as when the skin is the least sore it is peculiarly susceptible to irritation. When a gall is fresh and bleeding, nothing will so soon dry it and cause it to cicatrize, as a little dry table salt sprinkled upon it.

After the wound is in a measure healed, if it be absolutely necessary to use the horse, a careful examination of the harness or saddle should be made, and padding should be taken out, or parts of the leather removed, to prevent any part of it from touching the wound. To prevent friction, when caused by the saddle or collar, there is nothing so useful as a piece of raw sheep-skin, worn with the *flesh* side next to the horse. In riding long journeys, it is the safest plan to have such protection always under the saddle.

If the chafing is caused by loose straps striking and rubbing against the skin, they should be covered with sheep-skin, having its *wooly* side turned toward the horse.

Saddle galls are unlikely to occur, if the saddle fits the back, and is left on the horse for at least one hour (and it had better remain on two or three hours) after he is put into the stable. If convenient, he should be saddled half an hour before going out, as it is much better that the saddle should become warm, or slightly softened by the insensible perspiration of the back, before the rider's weight is put upon it.

The following is a good lotion for galls of the skin:

Sal ammoniac,	1 ounce.
Vinegar,	4 "
Spirits of wine,	2 "
Tincture of arnica,	2 drachms.
Water,	half-a-pint.
Mix.	

If no other remedy is used, a mixture of burnt leather, gunpowder and lard, should be occasionally rubbed on the gall to prevent the growth of white hair.

Sit-fasts, and their treatment, are thus described by Stonehenge:

"Sit-fast is merely a name for an obstinate and callous galled-sore, which has repeatedly been rubbed by the saddle, and has become leathery and disinclined to heal. If time can be allowed, there is nothing like a small quantity of blistering ointment rubbed on; or the application of a small piece of fused potassa; or even the nitrate of silver in substance, or blue-stone; all of which will produce a new action in the part; and if followed by rest from the saddle, will generally effect a cure."

Flesh Wounds.—The following, on the treatment

of ordinary flesh wounds, is from Dadd's Modern Horse-Doctor:

"Ineised wounds are those inflicted by sharp instruments. On the human body they often heal without any subsequent inflammation beyond what nature sets up in the restorative process; but the difficulty with the horse is, that we cannot always keep the parts in contact, and therefore it is not so easy to unite them. * * * * If the wound is seen immediately after infliction, and there seems to be the least probability of healing by first intention, we place a twitch on the horse's nose, and examine the part. If there be found neither dirt nor foreign body of any kind, the blood had better not be washed off, for this is the best healing material in the world. The edges are then to be brought together by interrupted sutures, taking care not to include the hair between the edges of the wound, for that would effectually prevent union.—Nothing more is needed but to secure the animal so that he cannot get at it. If he is to be kept in the stable, without exercise, for any length of time, he had better be put on half diet.

"Contused wounds are generally occasioned by hooks, or some blunt body connected with the harness or vehicle. They generally leave a gaping wound with bruised edges. We have only to remember that nature possesses the power of repairing injuries of this kind—of filling up the parts and covering them with new skin; all we have to do is, to attend to the general health of the animal, and keep the wound in a healthy condition. Our usual application is the compound tincture of myrrh. If the part assume an unhealthy aspect, a charcoal poultice will rectify that. If such cannot be applied, owing to the situation of the wound, dress it with pyroligneous acid."—*Herbert's Hints to Horse-keepers.*

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From the Working Farmer.

ROTATION OF CROPS.

The necessity for a rotation of crops may be thus understood. We have in nature sixty-four primary substances, all of which go to make up the ashes of plants, or otherwise are found within their organisms. Still, but fourteen of these sixty-four primary substances can be found in any one plant, and not all in the same plant. Thus, the fourteen constituents to be found in the ashes of the cabbage, are furnished from the soil to the cabbage by the assistance of its organism, and their assimilation is dependent upon the organism and surrounding circumstances; the cabbage, however, as a mechanism, receives all these constituents in solution; not only what it requires, but others, are present in solution, and during its growth it is continually parting with the unrequired constituents of the sixty-four primaries, as excrementitious matter, which in turn becomes pabulum for all future crops, and thus nurtures them, and after their assimilation, or, rather, reception in the cabbage, are parted with in an advanced proximate condition, capable of furnishing pabulum to other plants. This may be thus clearly understood. Suppose a cabbage, pulled suddenly from the soil, and the attached dirt be washed from it by a stream of water; then plunge the stalk of the cabbage into a glass jar, containing chemically

pure water, and the excrementitious process will go on. The water will soon become milky, then flocculent, then this flocculent matter will be deposited in the bottom of the jar; if this be poured around another cabbage that is growing, it will kill it; if poured about a beet, carrot or parsnip, it will prove pabulum to the growing crop, and materially increase its growth.

It is thus that the excrementitious matter of one crop becomes pabulum to another, and, therefore, "a succession of crops is the true rest of the soil." This principle may be carried still further, as in the raising of green crops for manure. Clover, buckwheat, peas, and other analogous crops, are often raised for the purpose of being plowed under. In sub-soiled lands these crops throw down their roots and receive the inorganic substances they require from the subsoil, and they not only deposit their excrementitious matter in the surface-soil and in the subsoil, but, by their decay, such portions as have been elevated from the subsoil to the surface-soil, are there deposited, and in a progressed form. Thus the potash, given up by the feldspar particles of the sub-soil, is progressed and deposited in the surface as pabulum for future crops, ready for assimilation and capable of increasing the growth of future crops. The same may be said of siliceous, lime, soda, and all other constituents of plant-life.

While the deposit of excrementitious matter in the subsoil gives such proximates, part of which are aggregated from the atmosphere, so, by their decay in the subsoil, adds to water their resident and increased power as a solvent, causing more inorganic matter in turn to be elevated to the necessary status for feeding future crops. It is for this latter reason that lands, after being subsoiled, may be surface-plowed to a greater depth with propriety; for, indeed, the subsoil, by such deposit, and by the effect of nature's laws, consequent upon the atmosphere, is rendered equal in quality to the surface soil, and thus the surface-plowing may gradually be deepened, presenting a greater area for the travel of roots, and, consequently, augmented profit to its owner.

Every farm contains another beneath it, which should be developed and rendered auxiliary to plant-growth. He that cultivates the surface to the depth of ten inches and is contented therewith, knows not of the blessings which Providence has furnished him, and of which the progression of mankind should teach him to avail.—[Ed.]

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BE NOT DISCOURAGED.—Hope on, hope ever. Life's prospects may appear to you dreary and uninviting; life's realities may be painfully oppressive to your sensitive feelings; but with trustful confidence believe that He who made a way through the Red Sea for his redeemed ones to pass over, can easily light up your path with sunshine, and strew it with fairest flowers. He who forms the night creates also the day; He who directed the course of the storm-cloud also sends the fair weather out in the north. The railway of life does not always lie through tunnels. Another moment and your gladdened spirit may be enjoying the fine balmy air, and revelling in the beauties of earth and sky. It may be that you are even just now upon the verge of God's choicest blessings.

The Farmer and Planter.

COLUMBIA, S. C., FEBRUARY, 1860.

HINTS FOR THE MONTH.

This is one of the most important months of the year to the planter. So many things begin now to press upon you, that a wet day, or bad spell of weather, or a little bad management, will be felt throughout the season.

If any repairs about the farm, buildings, fences, or implements, be required, have it attended to as soon as possible. There will be but little spare time for piddling after this month.

Manure.—Everything convertible into manure should be done at once, and hauled out upon the farm. Always select the fields nearest the manure pile for improvement, if possible, for it will not pay to haul it a great distance. We do not believe in the doctrine advocated by some writers, that the cotton planter can easily make manure enough for his plantation. This sort of talk will do for planters who own rich plantations, and have only a field or so near the house that requires manure and petting. There are very few of us, however, who cannot do better than we are in the habit of doing, and it is our duty as well as our interest to do it.—Scrape up all the litter about the negro quarters, hog-pens, cow-pens, stables, wood-piles, ash-hoppers, and feeding places, and haul it out to the field as soon as possible.

Cotton.—Lay off your cotton rows (if after cotton) in the alley, plow as deep as you can, chop in your stalks, sprinkle your manure in the drill, and lap two furrows on it with a large turn plow.

We think it a hazardous experiment to bed cotton land in February on all clay lands. The March rains and winds will be sure to pack the soil so close together that nothing can be done with it afterwards.

Corn.—Corn ground should be prepared as soon as possible—haul out the cotton seed intended for manuring it, and place them in convenient heaps for the purpose. Twenty bushels per acre will be enough for ordinary manuring, and be sure not to rot your seed before applying them.

In the preparation of corn land, keep in mind that you cannot plough too deep or prepare it too thoroughly. Land should not only be well ploughed but left so that it would not bag the water, or suffer by being run over by the spring rains—matters about which very few of us ever trouble ourselves to think.

Oats.—This has become a very uncertain crop. All spring sown oats, for a few years past, has been so injured by rust as to be nearly worthless. Egyp-

tian, sown early, may nevertheless do pretty well. It is the earliest variety we know of.

Wheat.—If your wheat is growing too rapidly, so as to be in danger of spring frosts, turn your calves and sheep or colts upon it for a few days, when the ground is dry. Do not overstock it. One animal to two acres will be enough to keep it down.

Rainy Days.—Take a look into the gear house—repair plow-gear; see that you have a full supply of back-bands, hame-strings, bridles, collars, &c.—See that your plows, plow-stocks, trace-chains, clevis, single-trees, heel screws, false coulter, &c., are all on hand, and in order. It is well always to have a few extras in this department—"things are always a breaking when people are in a push."

Stock.—This is a trying month on all farm stock. Keep an eye to your mules and horses; see that their shoulders are not hurt, and that they are well cared for. If you can grind their food, do it, and be sure to cut up your tops, fodder, and oats.

Keep your cows well protected from the chilling winds of February and March, and feed well. The calves will require particular attention; give them the benefit of your grass lots, barley, or rye patches.

Sheep will do well on a little hay, straw, cotton seed and bran; they should have an open shelter to resort to in bad weather, and plenty of salt.

Hogs, and sows with young pigs, must be watched and fed. If you have clover lots they will pay well now. Make an effort to keep all business moving onward systematically; it is better even to move slowly and surely, than to astonish the neighborhood by blustering and rushing through all sorts of wind and weather.

WHEAT.

A correspondent of the *American Farmer* seems to entertain some doubts about people making 40 bushels of wheat per acre. We are sorry that his banter to give any man five dollars to tell him how to do it, did not come under our eye sooner, or we should have stood a chance to pocket his money.

Our friend, W. R. ROBERTSON, of Winnsboro', S. C., made upon two acres of land, which had been worn-out years ago, 96 bushels, and upon one acre, 56 bushels good wheat, weighing 60lbs to the bushel. He did it by deep plowing and subsoiling, with the addition of 250lbs per acre of Peruvian guano, and 35 bushels per acre of green cotton-seed, sowing 1½ bushels of Gale wheat to the acre, plowing in, harrowing and rolling afterwards.

The Rev. J. P. Borce, his competitor for the premium, made 43 bushels per acre.

We ask the editor of the *American Farmer* if that looks like going down hill.

FIELD CROPS.

We are indebted to the Secretary of the State Agricultural Society for the following interesting statement of the awards on Field Crops, made at the meeting of the Executive Committee, on 4th of January, in Columbia. The competition was a very spirited one, and the results must prove highly satisfactory to all the friends of agricultural improvement. We call the attention of our confrere of the *American Farmer* to it, and ask his opinion if we are on rising ground:

Mrs. V. M. DEVEAUX, of St. Matthews, for the largest production, by the aid of domestic manures, upon five acres upland, 12,266 lbs - - \$30
Same upon one acre, same requisitions, 2889 lbs 10

Dr. D. W. RAY, of Richland, by the aid of mineral or imported manures, for the largest production upon two acres upland, 5714 lbs - - \$20 00
Same upon one acre, 3007 lbs - - 10 00
Largest net yield per hand on plantation, 30 00
Being as follows: Number of hands worked on plantation, 46.

Whole crop of Cotton—400 lb bales, - - 449
Whole crop of Wheat,—bushels, - - 739½
Whole crop of Chinese Sugar Cane Syrup, gal's. 1500
Whole crop of Corn—bushels, - - 4328
Whole crop of Potatoes—bushels, - - 2500
250 acres of peas pastured and fattened all hogs and cattle on the place.
23 acres fair Pinders.
52 head good Bacon Hogs, averaging 228 lbs net.

PER CONTRA.

Have bought and applied to the Plantation crop:
Peruvian Guano, No. tons, - - - 28
Gypsum, No. tons, - - - 14
Cotton Seed, bushels, - - - 3158

On the Premium Lots Dr. RAY applied—

Peruvian Guano, No. pounds, - - - 156
Gypsum, do. do. - - - 78
Common Cow-pen Compost—No. bushels, - 460
Variety of Seed, Boyd's Prolific—planted 19th April, in rows 4 feet apart, and seed dropped in chops 18 inches apart, and covered with a drag.
1st working, shaved down.
2d, ploughed out middles, and drew up.
3d, ploughed out.
4th, ploughed out and drew up. Plows used in the cultivation, the common buzzard seraper.

The two acre plat was thinner land, and cultivated in same way. The main crop was planted in rows 3 feet 3 inches apart, and in chops made with a hoe on the bed about 12 or 15 inches apart, and covered with a drag. Dr. RAY's land, we are informed by men who know, was once thought to be about as good a place to starve on as one could readily find, and yet, under his excellent treatment,

it has annually improved, and is improving. We are promised, however, a statement from the Doctor's own pen, which we hope soon to be able to give to our readers.

The other competitors for the Field Crop Prizes deserve honorable mention.

Col. A. P. CALHOUN, of Pickens, produced certificates of a yield from one acre improved upland, by the aid of domestic manures, of Cotton lint, 631 lbs. Cotton not ginned, - - - 313 lbs.

Mr. S. E. MAXWELL, of Pickens, produced certificates of yield from one acre, by aid of domestic manures, - - - 2,638 lbs.

Mr. A. W. MASON, of Fairfield, by the aid of mineral manures, upon one acre of reclaimed upland, - - - 2,050 lbs.

Dr. W. G. LOMAX, Abbeville, produced upon one acre of Low ground, for which no Premium was offered, - - - 2,938 lbs.

There were some other competitors who exhibited creditable results, as the effects of pains-taking and judicious culture, ranging from 1000 to 1500 lbs, upon fields worn out long years ago, and reclaimed now by deep plowing and manuring.

CERTIFICATES.

I certify that I planted an acre of land in cotton, last year, for Col. A. P. CALHOUN. It was a piece of land that had been worn out, with a Southern aspect. Col. A. P. CALHOUN only purchased one bushel of cotton seed, (the Dickson improved) which planted the land, (by rubbing the cotton seed in ashes.) The rows were three feet wide, and the cotton stood about ten or twelve inches in the drill. We hauled about 30 or 40 wagon loads of manure from the cow-pen, and scattered it broadcast, and turned it under, and then opened the drill and applied stable manure. First broke up with the gopher plow, then run the jack plow twice in the same furrow, in laying off the rows. The cotton was planted after the 20th of April; plowed twice, first with gopher, then with sweep; hoed three times.

AARON BOGGS, JR.

January 3, 1860.

S. E. MAXWELL'S STATEMENT.

Preparation of land, and subsequent culture of one acre of cotton, as a competitor for the premium at our District and State Agricultural Societies. February 1st, plowed with a long subsoil gopher, deep and close. This piece of land produced a good crop of wheat the last season, (1858;) it was left in this condition until the 23d of March, then 25 cart-loads of good ox-stall manure was spread broadcast and turned under with a good jack plow, to the depth of 4 or 5 inches, and followed in the same furrow

with a two-horse Broyles' subsoil plow, which run 12 or 14 inches deep, which, added to the depth of the first furrow, made 18 inches at least; the land was broke and left in this condition until the 5th of April; furrows were then run off $3\frac{1}{2}$ feet apart; a little good manure and ashes, mixed together, (about as much as 5 cart loads,) and spread evenly in the drill; the land, then, nicely bedded. On the 15th of April a narrow plow, made for the purpose, run on top of the beds, then a bushel of cotton seed—Boyd's Prolific—dropped evenly along, after being rolled in ashes, the seed covered nicely with rakes similar to the way seeds are covered in a garden.—On the 9th of May, plowed with a one-horse subsoil plow, and nicely hoed, drawing a little earth to the cotton, and thinned out to two stalks in a hill, eight inches apart; worked again on the 25th of May in the same manner, chopping out every other hill, which made sixteen inches apart, and thinned to one stalk. On the 9th of June the cotton was run round with a long, narrow shovel plow; then one measure of guano, three with coal dust, one with ashes, thoroughly mixed and evenly spread in those furrows; one hundred and sixty pounds of guano on the acre; the middles of the rows then nicely plowed out, covering the guano nicely next to the roots of the cotton—would have applied the guano earlier but could not get it—hoed nicely. On the 27th of June plowed and hoed in the same way, still drawing up a little earth to the cotton. On the 12th of July cotton hoed, and this finishes the culture.

On the 15th of August the cotton was topped, and the suckers removed as they made their appearance. The day and date of the picking you may find in J. J. & B. F. SLOANS' certificate. The land is red, and naturally good; and the location is such that the rising and setting sun shines upon it.

E. M. McCRARY.

MRS. DEVEAUX'S STATEMENT.

The cultivation of five acres, and one acre of Boyd's Prolific Cotton, 1859:

January 10th. Two furrows run in the alley, and the stalks put in. March 15th, five wagon loads of hog-pen manure put on the stalks, and listed, a two-horse subsoil plow run around the list, 18 inches deep. April 24th, the land ridged and planted; the rows three and a half feet apart, and planted eighteen inches on the drill. May 19th, every other middle plowed, and one side drawn with the hoe.—June 7th, the other middle plowed, and side drawn. June 12th, the dirt thrown from the cotton with a turn plow, and forty bushels of cotton seed put per acre—put each side the cotton, and covered with a four inch shovel plow. June 17th, every other row plowed, and the cotton thinned to one stalk, and

one side lightly drawn. June 27th, the other middle plowed with a six inch shovel once in the row, and drawn. July 8th, lightly plowed with a scraper twice in the row. July 16th, every other row plowed once in the row with the scraper, one side drawn. July 24th, the other side plowed and drawn.

The amount gathered on five acres, - 12,266 lbs.

The amount gathered on one acre, - 2,889 lbs.

J. M. CROSSWELL.

EXPERIMENTS.

Well conducted experiments are always valuable and interesting, because they point out to us the shoals and breakers which so often shipwreck our hopes, as well as the beacon lights that direct us into port.

The following experiments in "Cotton Culture, in Hancock, Georgia," that new El-Dorado, which seems now to be turning every body's head, we clip from our valuable cotemporary, the *Southern Cultivator*, and call the attention of our readers to it particularly. It is worth noting that the plowing was very well done—five inches deep, and close at that, the cotton was carefully planted—good stands and well cultivated—and we guess good seasons. It is, moreover, worth noting that those poor pine lands in Hancock cannot be such miserably poor things after all—if "No. 5, prepared on the old plan, planted on the old plan, no manure, on the old plan," can be made to yield 508 lbs. cotton per acre.

We have known people to get rich at that figure, and could find a good many who would be willing to compromise on that, and give up going west in search of a better country. We were once at a Fair in Georgia—a cotton-seed man was expatiating to a plain old farmer on the benefit of planting his seed. I'll insure it to make 500 lbs. more, per acre, on the same land—"whew! replied the old codger, d—d if 500 pounds aint just as much as I care about making on an acre, 'put up your stalks, mister.'"

COTTON CULTURE IN HANCOCK COUNTY, GEORGIA.

REPORT OF FIVE ACRES COTTON GROWN BY THOMAS M. TURNER, 1859.

No. 1, manured with 20 bushels of cotton seed and 50 pounds of Peruvian Guano.	
Product, 1806 pounds, at 3 cents.....	\$54 18
Cost of manure and applying it.....	5 00
	<hr/>
	\$49 18
No. 2, manured with 40 bushels cotton seed.	
Product, 1,574 pounds, at 3 cents.....	\$47 22
Cost of manure and applying it.....	5 00
	<hr/>
	\$41 22

No. 3, manured with 20 bushels cotton seed and 1 bushel salt. Product, 1,450 pounds, at 3 cents..... \$43 50
Cost of manure and applying it..... 3 50

No. 4, manured with 160 bushels good stable manure. Product, 1,424 pounds, at 3 cents..... \$42 72
Cost of manure and applying it..... 12 00

No. 5, not manured. Product, 508 lbs., at 3 cents..... \$30 72
Nos. 1, 2, 3 and 4 were prepared in March, by

turning the land over with the Allen Plow, going about five inches deep, running in each furrow with a large, long scooter. About the first of April the land was run off into 4 feet rows with a large scooter, as deep as a mule would pull it; in this furrow the manure was deposited, and at once covered by running a scooter plow on each side, making a small ridge. About the 10th or 15th of April two more furrows were run, one on each side of the ridge, with a turning plow, at the same time breaking out the middle with a large shovel plow, one furrow, making a large, flat bed.

The cotton was planted about the 20th of April. Process of planting: Opened the bed with a block about one foot long, which was attached to a common plow stock; in front of the block was a small bull-tongue plow, reaching below the block some three inches, and covering with a block of wood, shaped out so as to bring all the loose dirt to the centre and over the cotton seed. The cotton came up well. When well up, it was chopped out from one to three stalks in a hill, about fifteen inches distance. First plowing with two sweeper furrows in a row. About the 15th of May, chopped over again as soon as the plowing was done. Plowed twice after this, each time with a flat sweep, running twice each time; each plowing about eighteen days apart. A few days previous to the last plowing, hoed out the land between the hills of cotton, each plowing was as near the surface as it could be done, say one inch deep. Cotton opened early and has all been picked out except a small remnant. Scarcely a boll would be killed by frost if it should frost to-night. The land is a sandy pine land.

No. 5 was prepared on the old plan, planted on the old plan, *no manure*, on the old plan, product same as on old plan. About half of this yet to open. A frost now would cut it off at least 50 pounds.

Sparta, Ga., October 22, 1859.

In drawing conclusions from experiments it is always well enough to keep in mind that trite old saying, "one swallow don't make a summer." What may succeed on one kind of soil, under one season or the treatment of one man, must not necessarily succeed under another.

One of the editors of the *Southern Cultivator*, in some very interesting notes upon a late agricultural survey of several of the most successfully managed plantations of Georgia, remarks, that Maj. Neal, an intelligent and extensive planter of Warren, has utterly failed in his experiments with "commercial manures." "We walked over one of his cotton-fields,

the unmanured cotton was quite as good as that which had been manured." The Guano and Hoyt's super-phosphate did not make their mark.

Let us follow the editor to "Hancock"—the new Georgia El Dorado. On Mr. LANE's admirably managed plantation, we also find that "stable and barn-yard manure used on cotton has produced better results than Guano. But a gentleman who owns 2,000 acres of land (300 of it Creek bottom) can do pretty well any where, without guano, if he'll try. We find the editor next at "David Dicksons"—the man of Hancock—to whom every body is writing to know how he produces such wonderful results upon poor land. People have been told by Mr. DICKSON's friends—we can't put it on paper—come and see and you will find out that the half has not been told you. Examine our implements, our management, &c. &c.

In truth, we have been oppressed by the parade which has been made over this matter—because we knew human nature so well, that it would be content with no developments short of a miracle. The editor tells the whole story in a very few words: "In short, the whole of Mr. DICKSON's theory, which has wrought out such great results, may be comprised in a nut-shell. *Break up the land as deep as possible, manure as heavily as possible. In cultivation, keep the surface of the ground clean and loose, but never cut the root of the growing plant.*" All very well, but the last—which should have been written out, *more than you can help*, for every man who knows any thing of the cotton plant, knows that its rootlets run so near the surface that the plant cannot be cultivated without cutting them. But "Mr. DICKSON breaks his land 7 inches deep, with one-horse plows." How many men are as fortunate as Mr. DICKSON? In all our range we know no man who can go 7 inches, easily, with any *two horse* subsoil plow in existence. "Stick a pin there, then." Again, Mr. DICKSON has 300 head of cattle, 200 or 300 head of sheep, 600 head of hogs, and 50 head of mules and horses. He works 65 hands, makes 600 bales cotton a year, and a surplus of corn and wheat for sale. He cultivates corn and cotton with the sweep. In addition to the manures made upon the farm, he expends from \$7,000 to \$9,000 per annum for commercial manures, guanoes, phosphates, &c." "Notwithstanding this heavy outlay," Mr. DICKSON, counting the present value of his property from the time he commenced farming, has made 25 per cent. per annum, compound interest.

We can find many farmers who have done as much without remarkable management. Mr. DICKSON's land, when he began, cost him \$1, per acre—it is now worth \$15. Negroes were then worth perhaps an average of \$500, now they are worth \$800, and so on. But there is one point we want to come at, *pro bono publico*—how much land does Mr. Dick-

son cultivate? How much land does he exhaust by the feeding of his 1200 live stock. There was never a greater fallacy advocated than this, of restoring a plantation to fertility by raising stock upon it. Now and then you may find an individual blessed with such a domain, but it is very rare. Evidently Mr. DICKSON fails to make much out of his stock, in the way of manure, or he would not lay out from 7 to \$10,000 in Commercial manures. The question may be put in another nutshell; for the benefit of inquirers: Will the continued application of Guano insure good crops, and restore the land to its original fertility? And is not Mr. DICKSON's success dependant upon the Guano, the large area cultivated, the facility with which it is cultivated, and the fact that although the land *looks* poor—"it is not so poor after all."

WHEAT.

"Two years ago," writes John Le Couteur, "a farmer requested me to view a *very pure* crop; there was no mixture in it! In merely walking round the crop, which, in fact, was both pure and fine, in common parlance, I selected from it ten varieties." A crop of this variety, the Duck's Bill, then originally procured from Kiel in the Baltic, which I saw this year as a second year's produce, is so intermixed as to make it difficult to pronounce what variety it is intended for. The Duck's Bill is very subject to shake out from the ear if it is over ripe, and has proved to be only fit for making pastry, as it is too tenacious for the purpose of making household bread; hence the necessity of not only having wheat crops pure, but of knowing their particular qualities and properties.

It is very extraordinary that some sub-varieties have a pre-disposition to sport, or alter their appearance. A fine red sort was sown with others, pure apparently, and of three hundred and fifty ears, the produce of forty-six grains, there were two hundred to the original sort, which were a red, compact, hoary or velvety kind, twenty-one ears of a smooth red, eighty-six of a whitish downy appearance, and forty-three smoothed-shaffed white ears.

The above extract from Mr. KLIPPART's work on Wheat may be new to those who have not watched the proclivity of wheat to change its character upon a change of soil or climate. Every close observer must have noticed how soon the very white soft wheat brought from the north to our soil and climate begin to grow redder and harder.

The white soft wheat from Tuscany, distributed by the Patent Office a few years ago, although not sown near any other variety for three years, is gradually becoming harder and darker.

We once heard a distinguished wheat grower in Georgia say, that he had never been able to keep a white wheat from turning to red, or looking, in a few years, as if it had mixed varieties. And it is more than probable that in this way popular varieties run out in a few years.

COTTON SEED.

A good deal has been said lately in certain quarters about the value of cotton seed as an oil producer as well as food for stock. We give below an analysis of the seed, by Prof. JOHNSON, of Yale. and Dr. JACKSON, of Boston, which will be found interesting.

We notice, in looking over the New York market, that cotton seed is put down as worth \$1.30 per bushel. Our Yankee cousins must be able to make something out of it worth noting, if they can afford to give \$1 per bushel for it in New York.

It is worth, in our estimation, 25 cts. per bushel for manure, and if hulled, we have no doubt more for food. One of the greatest improvements which could be made in Southern agriculture would be some simple machinery by which the planter could hull his seed, express a portion of the oil for domestic use, and feed the cake to his cattle and sheep.

It would supply one of the most important links wanted in the rotation chain. We cannot make manure without stock, we cannot raise stock without food, and the better the food the better the manure. Many years ago we remember to have heard the late Col. HAMPTON speak very enthusiastically upon the value of cotton seed oil cake. A machine that would hull the seed on the plantation was all he would ask to enable him to show as fine animals as old England could show, and to make an abundance of manure.

Prof. Johnson, of "Yale," says: "Respecting the sample of Cotton Seed Cake received from you for chemical examination, I have the honor to report, that its composition is not inferior to that of the best Linseed Cake; and, in some points, its agricultural value surpasses that of any other kind of oil cake of which I have knowledge, as will appear from the following statement of its composition," compared with that of Linseed Cake:

	Cotton.	Linseed.
Water.....	6.82	9.23
Oil.....	16.47	12.96
Albuminous bodies.....	44.41	28.28
Mucilaginous and saccharine matters	12.74	34.22
Fibre.....	11.76	9.00
Ash.....	7.80	6.31
	100.00	100.00
Nitrogen.....	7.05	4.47
Phosphoric Acid in Ash.....	2.36	
Sand.....	.94	

"On comparing the analysis with the Linseed Cake it will be seen that the Cotton Seed Cake is much richer in oil and albuminous matters than the Linseed Cake. A correspondingly less quantity will, therefore, be required. Three pounds of this Cotton Seed Cake are equivalent to four of Linseed Cake, of average quality. The dung of cattle, &c., fed upon this article, will be greatly richer, both in nitrogen and phosphates, than that of animals fed on hay alone.—Where stock is kept, probably the best way of using this Cake as a fertilizer, is to feed it to the cattle, and carefully apply the manure they furnish. In this way, whatever is not economized in fat or flesh, will be available as manure."

ANALYSIS OF COTTON SEED CAKE, BY DR. C. T. JACKSON,
OF BOSTON.

UNION OIL Co.—*Gents* :—I have examined the Cotton Seed Oil Cake you sent me, and find it to be a pure and good article. The composition of the Cotton Seed Oil Cake, proves it to be good food for cattle, and an excellent fertilizer. The following is the ultimate analysis of such Oil Cake, according to my laboratory notes for 1855—56:

	Per cent.
Carbon.....	37.740
Oxygen.....	39.663
Nitrogen.....	7.753
Hydrogen.....	5.869
Inorganic Matters, (Salts).....	8.960
	99.985

The Inorganic Matters are in 5½ Grains Ashes.

	Per cent.
Alkaline. (Potash Salts soluble in water,).....	.13
Phosphate of Lime.....	3.04
Potash.....	.46
Soda.....	.53
Phosphoric Acid, with traces of Sulphuric Acid and Chlorine.....	.81
Silica, Oxide of Iron and Manganese.....	.18
Loss.....	.35
	5.50

Very respectfully,
Your ob't servant,
C. T. JACKSON.

THE POISONS WE USE.

The Report of a Committee at a Pharmaceutical Convention, held in Boston, has just fallen into our hands, and straightway visions of coroner's inquests, "*articulo mortis*," and "patent metallie cases" begin floating before us.

What are we coming to, when one cannot give the children colored confectionary, without arsenic or copper, gamboge, or some other poison; when your pickles and bottled fruits are seasoned with verdigris and sulph. copper, your custard powders with chrome lead, your cayenne pepper and curry powder is mixed with red oxide lead, your flour is brightened and lightened with plaster and alum, your sugar with sand, and flour and lime, your arrow-root is made out of rice, your mustard out of turmeric, your vinegar out of sulph. acid, your milk out of sheep's brains, chalk, ground turmeric, and yellow water, your butter out of starch, mutton suet, carb. lead and sugar of lead?

Your yeast powders contain poison, your cream of tartar, alum, copper, lead and arsenic, your beer contains nux vomica and cocculus indicus, your wine sugar of lead, or worse, your whisky "fusil" oil, or strychnine, your brandy arsenic, or something as sure to kill.

Where are we drifting to? Where is the remedy? Devote your attention to home-brewed ale, home-made wine, home-made bread, butter, milk, &c., and be independent of those who would cheat and kill us.

EXPERIENCE IN THE USE OF FERTILIZERS.

We would direct the attention of our readers especially to a matter-of-fact communication in this number, clipped from the *Southern Planter*, on the above subject. The extraordinary efforts which are now being made throughout the South to introduce "commercial manures!!" mean something, and it is well enough to listen to the voice of experimenters in advance of us. It is very certain that these manures do not tell the same story everywhere. It is well enough to look into the matter a little more closely than we are in the habit of doing. The editor of the *American Farmer* very properly remarks, that—

There is no point at which the farming community need protection more, than in the sale of fertilizers, and none at which they are so much exposed. The amount of money expended, has become an enormous annual tax upon our agriculture. Our farms are paying their thousands of tribute, and in a very large portion of our territory there is scarcely a man who is not spending a sum large in proportion to his means, in the honest hope of enlarging his products, of improving his land, and contributing to the general prosperity of the country. If they are disappointed in their expectation it becomes a grievous evil. It is money thrown away first; but it is worse than this—the disappointment of a reasonable expectation of profit, and a check upon the generous spirit of improvement, from which we expect so much for the advancement of agriculture.

Our present system of inspection applies in fact where it is least needed. The Peruvian Guano it is quite possible to get, always so direct from the importers hands, that there is very small risk of adulteration, if proper care be taken. The Phosphatic Guanoes are consumed, to a very large extent, by manipulators and manufacturers of super-phosphates, who, buying in considerable quantities, can afford to ascertain and be assured of the quality of the article they purchase. Beyond these two leading articles our inspection laws do not extend. All the numerous brands of manipulated guanoes, and all the super-phosphates, the ground and prepared bones, and many other preparations, pass unchallenged from the manufacturer to the consumer. If the inspection is worth anything, it should surely have its most rigid application to all such articles.

The editor of the *American Farmer*, living as he does, in the very midst of the phosphatic manufactures, has the very best opportunity of knowing what he writes. There is one remark of "Pamunkey's," however, worth noting, which we can all try, and if found correct, is worth knowing: "A portion of land covered with a heavy pea fallow, produced more wheat, and of better quality, than any of the land covered with mixed, or manipulated or Peruvian guano." *Stick a pin there.*

POTATO BREAD.—Boil and peel a dozen mealy potatoes, rub them through a sieve, mix them thoroughly with twice the quantity of flour or meal, add sufficient water to make a dough of the ordinary consistence, ferment in the usual way with hop or potato yeast, and bake in a rather hot oven.

COTSWOLD SHEEP.

In presenting a cut of this famous breed of large sheep, we feel that we are doing a service to the wool-growers of the planting States. Here we require vigor of constitution, heavy fleeces, and good mutton qualities. In all these requisites the Cotswold stands preeminent. Originally bred on dry, bleak hills, covered with sparse herbage, this race has been brought to its present great weight by judicious breeding, and not by forced feeding. From this fact, we may hope that their size and fleeces may be maintained, with fair keep in the hilly portions of the South. Mr. SUMMER, of Pomaria, has imported a small flock of these sheep, and Mr. R. H. PORCHER, of Pendleton, has purchased some fine ewes from a noted breeder in Virginia. These sheep attracted universal attention at the last State Fair.

They were large in size, heavily woolled, and convinced the planters that the Cotswold was to furnish that cross upon the common sheep of the South, which was to bear the wool to clothe our negroes. The wool of the Cotswold is very long, and tolerably fine, has no hairyness, and for strong, serviceable goods, has no equal. The mutton of the Cotswold is very free from that abundance of tallow which renders Leicester mutton so objectionable, and in quality resembles the best South Down; but it is much larger than that famous breed. It is but proper to add that they are fine breeders and nurses, invariably producing two and frequently three lambs, at a birth. The New Oxfordshire sheep, so famous as prize takers at the English Fairs, are only the improved Cotswolds. We hope to see other introductions of this valuable breed made by our Agriculturists.

"PRESENT CONDITION OF AMERICAN AGRICULTURE."

Our readers will find a capital article on the above subject, from the *Field and Fireside*. It is pretty caustic, but not a whit too much so. The time has come when Southern people should not only speak plainly, but act promptly. We must defend our own institutions against all invaders, whether they come in the shape of JOHN BROWN, or penny-a-liners, foreign correspondents, editors, drummers, tree peddlers, venders of gimcrack jewelry and galvanized spectacles, book agents or perpetecie philosophers.

There is no man amongst us so humble, that he cannot exert some influence. Do you want a new coat, hat, shoe, tub, bucket, broom, axe, plough, wagon, buggy, carriage, bridle or saddle? Do you want a bolt of osnaburgs, linsey, drilling, sheeting, shirting, or a bundle of cotton yarn? Do you want a newspaper, a periodical, a book, a horse, mule, cow, hog, sheep, goat, a barrel of flour, or any thing

else—ponder on it a while, and look about you to see if you can get such things made, or bred at home, on anything like as good terms, and ask yourself if it be not your duty, as well as sound policy, to patronize our own mechanics, manufacturers, breeders of animals, &c., and thus bind together more closely all the different branches of industry amongst us, and strengthen our independence. Amputation may become necessary, but while the learned faculty are discussing this point, let us apply a little caustic, now and then, to the diseased members—it can do no great harm, and it may do good.

PREMIUM ESSAY.

Our readers will find in our present issue, one of the Premium Essays read at the late Agricultural Fair of the State Agricultural Society, from the pen of D. WYATT AIKEN, of Abbeville.

It will be found a practical and suggestive paper, upon a most important and sadly neglected branch of plantation economy, and will, we trust, set people to thinking more earnestly upon the subject.

For the Farmer and Planter.

"HOW TO GET UP HILL."

The "problem to be solved," I take it, Mr. Editor, is not how to cultivate a larger area, not to roll out more bags of cotton—for really we have neither the land nor the labor to do it—but it is, to make more upon the same area, with the same labor, and wear out less. That is the question, and how is it to be done? The man who buys Guano by the ton, and cultivates double the number of acres, by means of improved implements, is doing very little towards permanent improvement, he is only taking, to my notion, another method of "killing the goose to get the golden egg." We must use the *improved implements* to cultivate *better* what we do cultivate, to prepare our soils better, to plant more carefully, to cultivate more systematically, and to employ what spare time we may gain, in repairing and improving the plantation, in making manures, in raising domestic animals, in growing more wheat, more corn, more roots, in fact everything which will increase our independence or add to our prosperity.

There is not a farm in the country, I take it, wherever substantial improvements cannot be easily introduced at very little cost or trouble, that will not pay well, if we will try right hard. How many are there amongst us who cannot raise a few more sheep, hogs, cattle, goats? Who could not raise one more horse, or a few more bushels of wheat, oats, rye, barley, peas, potatoes, hops, grapes, peaches, apples, pinders, or pumpkins?

There never was such people to see buggerboos as the Southern planters. Talk to a man about growing grass, planting an orchard, raising stock, or any-

thing but planting cotton, and you are met by the reply—"Why, if everybody gets at it, it will be worth nothing;"—and so, for fear everybody may plant an orchard we will do without fruit! How many dollars are annually paid the North for worse apples than we can grow at home? for worse hay? for poorer potatoes? for buckets and tubs, when we have the best cypress in the world? for iron, hoes, axes, and ploughs, when we have the best iron in the world, and good workmen to work it up? for carriages, buggies and wagons, when we have the best of timber for such purposes, and good mechanics? for mahogany and walnut furniture, when we have the best of walnut, and of china tree and sycamore, the most beautiful of wood for buckets? and willow work, when every swampy stream in the country abounds in willow, and many of our women are knitting stockings at 25 cents a pair and finding the wool? for osnaburgs and yarn, when we have the raw material, the water-power, and the labor at home? for woolen-negro kerseys, made out of cow hair and rags, when we can grow wool, and have manufacturers ready to work it up? for cassimere hats, made out of cotton? for shoes, made out of shavings and poplar wood, when we have leather? for wine, made out of drugs and poisons, when we can grow grapes? But, Mr. Editor, I will not wear out your patience by a catalogue as long as it is discreditable.

OLD HOMESPUN.

For the Farmer and Planter.

"CALVES SHOULD NOT BE KNOCKED IN THE HEAD WITH THE BUTTER PADDLE."

MR. EDITOR:—There are few more fatal mistakes, in point of economy, committed on our plantations, than the sacrifice of the calf for the butter.

"I must have more milk," says Madame, "we are nearly out of butter," so the overseer gives the order to the milker, to bring more milk to the house, and the poor calf suffers for it. Instead of seeing to it, that the cows are better fed, and the calves better provided for, he takes the shorter cut of starving the calf. If you must have butter, take a little more pains to get it. A sucking calf is indisposed to shift for itself—it depends upon its mother, and will starve, before you find out what is the matter with it. It must be coaxed to eat—begin with a little meal or wheat bran, let it have access to good water, now and then a little hay or straw—keep it in a clover, wheat or barley pasture, and in a few months it will be very independent of the mother. Above all, allow it a place of retreat for protection against bad weather. Keep the little negroes off with their sticks and nooses for roping up at sucking time, and use all gently. Turn the little fellow out in the range in the Spring, sleek and contented, and he will be

independent of the March winds, and come back to you in the Fall, able to take care of himself. But if you hit him too often with the butter paddle, you will get neither hide or tallow in return.

M. R. S.

For the Farmer and Planter.

FODDER PULLING.

MR. EDITOR: Last year I saw in the *Southern Field and Fireside*, an experiment to prove that fodder pulling was inexpedient because it was not economical. I was then inclined to that opinion myself, but before giving up a practice so honored by time and custom, I made an experiment to verify the one I allude to above.

I selected twelve rows of corn, as nearly alike as I could find in the field. When the hands came to them, pulling fodder, (August 27th,) I had every other row stripped, leaving the alternate six, with the fodder untouched. I saw the corn gathered, shelled and measured—there was no difference in the measurement. I then determined the weight of a bushel of either; of the corn from which the fodder was pulled a bushel weighed 58 lbs.—that upon which it was left weighed 59 lbs. per bushel.

According to the above, fodder pulling does pay, but to be satisfied, I will repeat the experiment next year.

J. L. COKER.

Hartsville, December, 1859.

OUR BOOK TABLE.

We are indebted to Mr. AFFLECK, of Texas, for a copy of his *Plantation Record Book for 1860*. It is the completest thing of the kind we have ever seen, and no planter, who has an eye to system and accuracy, should be without it. It is arranged with inventories for farm implements, stock, &c., tables for cotton picking accounts, instructions to overseers, balance sheet, &c.

No man can keep this book a year and look over its pages without feeling satisfied that he has made a good investment in paying out \$2 50.

Address THOMAS AFFLECK, near Brenham, Texas, and it will be sent to you, post paid.

SALT FOR HORSES FEET.—Common salt absorbs moisture from the atmosphere, hence it has been in some instances applied with great success for keeping the hard-bound hoofs of horses moist. The hoofs of some horses become dry and oftentimes crack, thereby rendering them lame, if the animals are driven on hard roads. By bathing the hoof and fetlock joint with a salt brine three times a day, lameness from the above cause will be avoided. It is a common practice with some blacksmiths to rasp cracked hoofs in order to render them more tough, but salt brine is far superior to rasping for effecting this object.

The price of the *Farmer and Planter* is only one dollar per annum.

All subscriptions to the *Farmer and Planter* must commence with the January number.

Gorticultural and Pomological.

WILLIAM SUMMER, EDITOR.

MONTHLY TALK WITH OUR READERS.

The close of the past month was mild and pleasant weather, and gardening may be considered as having been commenced in earnest. The days of genial and vernal mildness, which is so usual in this month, give us a foretaste of Spring, and the *blue* bird, the friend of the gardener, "flits like an azure ray" across our path, ready to devour the insects as the mellow earth is turned up to the sun. Have your ground well forked and prepared—lose no time in making a good start with your gardening operations this month, and if enriched properly, you will enjoy good and abundant vegetables. Plant *Irish Potatoes*, the principal crop. *Asparagus* beds, if not attended to last month, must now receive proper attention—plant new beds. Dress up *Strawberry* beds, and enrich them with super-phosphate. This seems to furnish every necessary ingredient the plants require. No crop of early fruit repays so well and so early. The birds do not devour them like the early cherries; and rich strawberries, "smothered in cream," is a repast not to be despised. These fruits should be abundant, and contributed daily to the table, being wholesome and relished by all.

In this month we plant our crop of *Peas*—all the varieties about the same time—they will then give a regular succession, the *Daniel O'Rourke* coming in nearly one week in advance of any other—*Sangster's Early*, next—and with others, there is no trouble in keeping up a succession. Friend Mior, we observe, has a fine selection for sale. Sow *Early York Cabbage*, the large variety principally, and *Early Dutch*, and do not neglect to provide seed of the true *Late Flat Dutch Cabbage*, as it is decidedly the best cabbage grown, of best flavor, and producing the finest heads. Sow *Lettuce* on ground which has been previously enriched, or manure with finely decomposed manure. The ground must be rich and finely prepared to grow this vegetable tender and to perfection.

Continue to sow *Spinach*, *Cabbage*, *Mustard* and *Radishes*, to keep up a succession, and in the latter part of the month *Carrots*, *Parsnips* and *Beets* may be sown. Plant out *Onions*, *Garlick*, *Eschalots*—sow *Onions*. *Celery* that has been sown in Autumn will now require to be earthed up in dry weather, and seed may be sown of the solid variety. Plant *Artichokes*, *Salsify*, &c., as they are nice additions to the preparations of the table.

Is your garden supplied with the best pot-herbs,
NEW SERIES, VOL. II.—8

such as *Marjoram*, *Savory*, *Sage* and *Thyme*? If not, prepare a border for them, so necessary to flavor the various dishes. The French and German use them to the exclusion almost of the spices of the east.—*Parsley seed* should be sown now for garnishing in Spring. Reserve a place to transplant *Summer Savory* and *Sweet Basil*—two of the most delightful annual pot-herbs; the seed of these should be sown the last of next month. If you have a hot-bed, plant a few hills of *Cucumbers*, *Water-melons*, *Cantalopes* and *Squashes*, in small baskets made open of twigs; fill with rich compost earth, and after planting your seed put in the hot-beds. They may be advanced ready to blossom by the time the danger of frost is over, when they can be set in holes properly prepared, in the open ground, without removing them from the baskets. In this manner you may enjoy these a month in advance of the usual time.

This month *Evergreens* of all kinds should be planted, and with proper care they will grow as easily as deciduous trees. Their leaves are mature, and with the rising sap they readily form new leaves, and make a new growth. The *Deodar Cedar*, the *Cryptomeria*, the *Cedar of Lebanon*, with the *Magnolia*, the *English Laurel*, and other fine Evergreens, are so appropriate and ornamental, that all should plant a few about their homesteads.

Plant *Roses* during this month, as it will be rather late the next. The *Perpetuals*, *Bourbons* and *Teas*, with the *Noisettes*, bloom so constantly, and with their delightful fragrance diffused now throughout the season, it would seem, ought to encourage every one to plant a few. The rose no longer "sweetly blooms in June," but many of the new perpetuals are as fragrant as the rose of which the poets sung so sweetly. Plant box cuttings for borders, and the *Thrift*, a species of dwarf phlox, forms also a beautiful ornament for flower-borders. The *Golden Bell*, the *Sperias*, *Flowery Quince*, *Almonds* and *Peaches* will put forth their abundant bloom this month, warm with the breath of Spring, while the Flower Garden will show *Tulips*, *Hyacinths*, *Jonquils*, *Daffodils* and *Snowdrops*—lovely flowers which always charm and interest us. Plant flowers for your children—they will refine and elevate their minds, and give them an attachment and love for home, around which gather so many social feelings.

The *Lawn*, which adds so much to the beauty of a place, must now receive attention. Sow *Blue Grass* and *White Clover* over your yards and grounds. If the soil is finely prepared, and raked or harrowed smooth, the seed sown over, and brushed over or rolled, a stand can be effected, either on the open lawn or under the shade of trees. The *Bermuda Grass* also makes a good covering, especially in such places inclined to wash. We prefer blue grass and

clover. Dress the land with wood ashes, which will give the grass and clover a fine start.

The *Orchard* will this month require particular attention. If you have not examined your peach trees, lose no time. Scrape away the earth and take out all grubs, and apply some ashes about the roots. If the trees are badly injured make up a mortar of lime, ashes, clay and sand, and plaster up the wounded parts, caused by the borer. Have the trees properly cleaned, and in the month of May, when the borer, in its moth state, deposits its eggs about the stem, make a hillock of earth 12 inches high—leave this until November, when scrape it away from the stem or collar of the tree; the eggs of the moth thus perish, and in two years the trees can be entirely, with a little care in winter, be removed. Examine your *Apple-trees*, and if you see any sign of the *bark louse*, paint them over with soft soap, applied of the consistency of cream—and the trees will wash off by rain, cleansed and improved. If you have any good trees bearing worthless apples, graft the heads with choice varieties. Early apples are always acceptable for making pies. Do not wait for the grafting peddler to come along, but have it done yourself; there are always some persons to be found who are skilful enough to perform this operation. The great Sir ISAAC NEWTON made preparation for these things, and his favorite red streaked have been found to flourish and succeed, even in our climate. When such things engaged his master mind, they might claim the attention equally of any other, who has the comforts and enjoyments of life at heart. Plant southern acclimated trees, and you will not be disappointed. Encourage your own nurseries, and do not be any longer humbugged by abolitionist tree peddlers, who seek to make strife and discontent amongst your slaves and domestics. A tree grown by slave labor will not taint the fruit. We find negroes, as a class, always fond of fruit, and if you wish enough for your own use, plant also sufficient for them.

In planting out an orchard, the object should be to give a succession of all the varieties from early to late, and, where convenient for sending to market, a greater number should be planted of best market varieties. The demand for fruit will increase, and it will take years to grow the trees for a sufficient supply. This month fruit trees of all kinds can be planted with the best success. Commence the good work with 1860, and at the expiration of the next decade you will thank us for encouraging you to plant fruit trees.

Nothing tends more to cultivate refined domestic comfort among the younger members of the family than the attractions of a pleasant home. Nothing shows the refinement of the farmer or planter more

than the attractions of a pleasant home—it shows his good taste, and that he is desirous of making all around him pleasant and comfortable. Beautiful and attractive homes tend to increase all the good qualities of the occupants, and remove the bad. Beauty and loveliness in nature tend to all that is noble in thought and deed, and make mankind better, both as concerns their own happiness, and that of others. If your house is plain and common it makes no difference, you can adorn the yard and beautify and improve it with flowers, they will cost you often nothing but the trouble of getting them, unless some rare varieties are desired, and the wife and children will cultivate them—never fear that. Get good and useful books, and place them in the hands of your children. Take at least one good agricultural paper—and we think ours is worthy of support—strive to make your home and family a pattern one, and in no way can it be done so easily as by adorning it externally as well as internally.

HOYT'S BONE SUPER-PHOSPHATE OF LIME.

As we have had numerous letters asking our opinion of this fertilizer, we adopt the present to answer inquiries, by giving our experience with it.

We applied 200 lbs. to exhausted sandy land, planted in cotton, and the result was a fraction over 900 lbs to the acre, on land which would not have produced over 300. On better improved lands the yield was about 1,100 lbs. The drought caused a late growth of bolls, which, not maturing, caused a considerable loss.

Our experiments on exhausted bottom lands to which we applied from 150 to 200 lbs, gave an increase of one-third more than on lands not thus treated. We are testing it this season with oats, at the rate of about 170 lbs to the acre. The land has been also seeded with red clover and orchard grass, with a view of securing double benefit. For garden purposes it seems to be an admirable preparation, and well suited to all the crops to which we applied it.

Cabbages treated with it produced large fine heads. Lettuce grew equally fine and tender. Onions, beets, radishes, carrots and parsnips, made large smooth bulbs; white turnips and ruta bagas were finer than with various other preparations and composts which we used, and the yield much better than with Peruvian guano. Applied to Lima beans the effect was most extraordinary, causing them to bear early and long continuous crops. So also with other beans.

Applied to melons, cucumbers and squashes, the effect was equally beneficial, producing fruit uniformly of good size, smooth and perfect.

We gave our strawberries a dressing with this fertilizer, and with the favorable moist spring season,

the effect was every thing that we could have wished—the fruit early and abundant, continuing for nearly three months with some of the varieties. If Mr. HOYT continues to prepare his fertilizer carefully, we feel confident it will prove a benefit to our farmers and planters, and in common with other preparations of a like character, render us not so dependant upon those engaged in the Peruvian guano monopoly.

THE LAWTON BLACKBERRY.

The past season this variety has borne enormous crops of fruit with us. It will be quite an acquisition, as the fruit has more flavor and is better for pies and jams, than the common high bush variety. It grows of medium height, and the fruit is easily gathered—being well suited to gardens; a few dozen plants will supply a family with fruit, and as it has now been multiplied equal to the demand, the price is moderate, and will repay the trouble and care in setting a small plot with them.

New Rochelle Blackberry is the same variety. Plant in rows 6 feet apart and 3 feet apart, and train to a trellis formed by stakes and a few laths, to which tie up the plants—they bear so much that the fruit would bend the stalks to the ground, and with this precaution the fruit is kept clean, and easily gathered.

EXAMINING BOTTOMS OF WELLS.

It is not generally known, we think, how easy a matter it is to examine the bottom of a well, cistern or pond of water, by the use of a common mirror. The *New Hampshire Journal of Agriculture* says: When the sun is shining brightly hold a mirror so that the reflected rays of light will fall into the water. A bright spot will be seen at the bottom, so light as to show the smallest object very plainly. By this means we have examined the bottoms of wells fifty feet deep, when half full of water. The smallest straw or other small object can be perfectly seen from the surface. In the same way one can examine the bottoms of ponds and rivers, if the water be somewhat clear, and not agitated by winds or rapid motion. If a well or cistern be under cover or sheltered by buildings so that the sunlight will not fall near the opening, it is only necessary to employ two mirrors, using one to reflect the light to the opening, and another to send it down perpendicularly into the water. Light may be thrown fifty or a hundred yards to the precise spot desired, and then reflected downward. We have used the mirrors with success to reflect the light around a field to a shaded spot, and also to carry it from a south window through two rooms, and then into a cistern under the north side of the house. Half a dozen reflections of the light may be made, though each mirror diminishes the brilliancy of the light. Let any one not familiar with this method try it, and he will find it not only useful, but a pleasant experiment. It will, perhaps, reveal a mass of sediment at the bottom of a well which has been little thought of, but which may have been a fruitful source of disease by its decay in the water.

From the Gardener's Monthly.

EXTRAORDINARY GROWTH OF A TEA ROSE.

BY PROF. PAGE, WASHINGTON, D. C.

Tea Rose *Devoniensis* has been characterised as the "*Tea Rose par excellence*," but *Glorie de Dijon* promises to eclipse this and every other rose for general culture in this latitude; since its introduction here, four years ago, I have not heard of its being injured in the slightest degree by cold, though during that time the winters have been more severe than for thirty years previous. Some Roses are more injured here in open winters than in hard winters, in consequence of winter growth, but we have had upon the *Dijon* Rose two hard and two open winters, and I have never seen even the extremities of the shoots injured in either case. I notice that some of our florists class it with *Noisettes*, but it is most essentially a Tea Rose, and I think the *Devoniensis* ought now to yield the palm. For fragrance it is a fair rival, and for other desirable qualities pre-eminent above all others. Its color is, at times, fascinating, though variable; sometimes it is very yellow, sometimes salmon, pink and yellow mixed, and sometimes cream; but when it puts forth a huge cup-shaped flower, with smooth petals, grading in color from a pink and yellow margin to a deep salmon centre, it is matchless. Its foliage is not the least of its charms and good qualities, and I have never found any rose so well adapted to cultivation in the greenhouse as the *Dijon*, either in pots, vases, or upon the walls; withal, it bears seeds, and gives promise of a progeny that may be free from its only defect. Its petals are sometimes ragged, giving it a wilted appearance and disqualifying it for bouquets; but its growth and habit outweigh all its other merits, and cancel all objections, and, if any of our nurserymen are fastidious about budded roses they may as well cede the point so far as the *Dijon* is concerned. It grows well upon its own roots, but from four years' experiment I am satisfied that its growth is incomparably better when budded; and, if the following description of the growth of a budded *Dijon* bush, in one season, can be equalled anywhere by a *Dijon* on its own roots, I shall be ready to cede my position. A *Dijon* bush budded upon a *Manetti*, set out upon the eastern wall of a house, this spring, has, by this time, accomplished the following extraordinary feat: It has made one shoot of 14 feet, 1 of 13½, 1 of 13, 1 of 12½, one of 7, one of 8, and one of 3 feet, and, in the aggregate, has, therefore, grown 71 feet in one season—and this is the first season of its setting out. In all this exuberance of growth, it has not been devoid of flowers, and Rose Connoisseurs will be surprised to learn, that while all this vegetation has been supplied through the roots of the *Manetti*, this latter has never offered to send forth a shoot or sucker from itself. Time may show to the contrary; but thus far I find that the *Glorie de Dijon*, and also the American Rose, entirely suppress the tendency to sucker in the *Manetti* stock, and, doubtless, this will be the case with vigorous growers generally.

MEAD.—This favorite beverage, that, for centuries, was the chief libation of northern nations, is made by dissolving one part of honey in three of boiling water, flavoring it with spices, and adding a portion of ground malt, and a piece of toast steeped in yeast, and allowing the whole to ferment.

KEEP YOUR POULTRY YARD AS CLEAN AS POSSIBLE.

Fowls frequently suffer much annoyance from the presence of vermin, and a hen will often quit her nest, when sitting, in order to get rid of them.—This is one of the uses of the *sand* or *dust* bath; but a better remedy, and one of far speedier and more certain efficacy, has been discovered at Windsor, by her Majesty's feeder. The laying nests at Windsor are composed of dry heather (*Erica tetralix*) and small branches of hawthorn, covered over with white lichen. These materials, rubbed together by the pressure and motion of the hen, emit a light powder, which, making its way between the feathers to the skin, is found to have an effect of dislodging every sort of troublesome parasite.

Lichens may easily be collected from rocks and trees, and the nests furnished with them. Rotten wood, thoroughly dried, produces a powder equally destructive of vermin.

The fowl house should also be frequently and thoroughly cleaned out, and it is better that the nests be not fixtures, but formed in little flat wicker baskets, like sieves, which can be frequently taken down, the soiled straw thrown out, and themselves thoroughly washed; hay is objectionable, as tending to the production of a parasite of the *louse* tribe, the annoyance of which will often drive the hen from her nest. Fumigation, at no very remote intervals, also highly to be commended. Nothing is of more importance to the well-being of your poultry than a good, airy walk.

Cleanliness, a free circulation of air, and sufficient room, with proper kinds and quantity of food, are the conditions on which success in raising poultry principally depends.

Among the most necessary appendages to every poultry house, is the *Hen Ladder*. This is a sort of ascending scale of perches, one higher than the other, yet not exactly *above* its predecessor, but somewhat in advance. By neglecting the use of this very simple contrivance, many a valuable fowl may be lost or severely injured, by attempting to fly down from their roost—an attempt from succeeding in which the birds are incapacitated, in consequence of the bulk of their body preponderating over the power of their wing. This would not, of course, take place among wild birds; but we are not to forget that our *improvements* in the breed of all animals tend to remove the varieties on which we expend our care, gradually farther and farther from their primitive condition, and conduce to deprive them of much of their native activity, and, as our improvements proceed, to render them ultimately almost useless; hence the necessity of such artificial aids as the hen ladder; and, perhaps, even in the stable this accessory is more absolutely required than in less humble poultry-houses, on account of the great height of the roosting place.

A BEAUTIFUL CONCEIT.—Some author, we remember not who, informs us how he became indebted for the red rose. They were all of a pure and spotless white, when in Eden they first spread out their leaves to the morning sunlight of creation. Eve, as she gazed upon the tintless gem, could not suppress her admiration of its beauty, but stooped down and imprinted a warm kiss on its snowy bosom. The rose stole the scarlet tinge from her velvet lip, and yet wears the crimson blush.

HEN HOUSES.

A correspondent of the *Germantown Telegraph*, gives the following plan for the proper construction of a hen house:

Two years ago, I put up a building of gravel brick, which you must know are composed of a mixture of gravel and lime, and moulded into blocks as large as six or eight common bricks, and allowed to dry in the sun for some weeks before being laid. The house is 20 by 12, on the ground, and to the eaves about 10 feet high. We divide it into two equal parts, for a smoke-house in one end, and the other for the accommodation of the poultry. Of course the partition wall is entirely tight. As the roof is of common cedar shingles, it was necessary to plaster overhead, to make it fire-proof. The floor is in one piece, of the same cement as the wall.

Thus you have the domicil. Now for its management and its advantages. Once a week, early in the morning, while the dew is yet upon the grass, if the weather be dry, it is thoroughly *burned out*, and purified of all *foul* things. This is done by gathering the litter of the nest and the sweepings from the floor, to the latter, on which pile is thrown an armful of dry straw or shavings, with a couple of spoonfuls of sulphur. The windows are next closed on the inside with sheet-iron coverings. The fire is kindled, the door is shut, and the work of purification is continued for half an hour. Now, when the fire has been extinguished, what remains upon the floor is gathered into a barrel, and shoved to one side, where it is kept dry from the weather, as a valuable fertilizer, till needed for the field or garden. Thus is collected six or eight barrels per year of this home-made guano, which we think worth more than twice the interest of the cost of the entire building.

The whole expenses of both hen and smoke-house was less than one hundred dollars. You will perceive that, by upsetting and burning the nests weekly, there is no chance for setting hens. You must therefore find other quarters for them and the little cickens, which is better for all. In the roost are accommodated about eighty hens and cocks, which are happy and healthy, and which supplies us with an abundance of eggs the year round.

CHEAP AND EXCELLENT CANDLES.—The following receipt I have tried several times, and find it all it is cracked up to be. I have no doubt that it would have been worth \$50 to me had I known it five years ago. Many farmers have a surplus of stale fat and dirty grease, which can be made into good candles at a trifling expense. I kept both tallow and lard candles through the last summer, and lard candles standing the heat the best and burning quite as well and giving as good a light as the tallow ones. Directions for making good candles from lard: For 12 pounds lard, take 1 pound salt-petre, and 1 pound of alum, mix them and pulverize them; dissolve the saltpetre and alum in a gill of boiling water; pour the compound into the lard before it is quite all melted, stir the whole until it boils, skim off what rises; let it simmer until the water is boiled out, or until it ceases to throw off steam; pour off the lard as soon as it is done, and clean the boiler while it is hot. If the candles are to be run, you may commence immediately; if to be dipped, let the lard cool to a cake, and then treat it as you would tallow.—*N. E. Farmer.*

ADVANTAGES OF TREES.

We do not know the author of the following beautiful and comprehensive notice of trees, but we think its personal will cause many of our readers to involuntarily and heartily respond to the familiar and popular language of the song, "Woodman, spare that tree:"

How beautiful, most beautiful of earth's ornaments, are trees! Waving out on the hills, and down in the valleys, in wildwood or orchard, or singly by the wayside, God's spirit and benison seem to us ever present in trees. For their shade and shelter to man and brute; for the music the winds make among their leaves, and the birds in their branches; for the fruits and flowers they bear to delight the palate and the eye, and the fragrance that goes out and upward from them forever, we are worshipful of trees. "Under his own vine and fig tree"—what more expressive of rest, independence, and lordship in the earth! Well may the Arab reverence in the date-palm a God-given source of sustenance. Dear to the Spaniard is the olive, and to the Hindoo the banyan, wherein dwell the families of man, and the birds of heaven build their nests. Without trees, what a desert place would be our earth—naked, parched, and hateful to the eye! Yet how many are thoughtless of the use and beauty of trees. How many strike the axe idly or wantonly at their roots. Above all other things in the landscape, we would deal gently with trees. Most beautiful where and as God plants them, but beautiful even as planted by the poorest art of man, trees should be protected and preserved. If he is a benefactor who causes two blades of grass to grow where one grew before, how much greater his beneficence who plants a tree in some waste place, to shelter and shade, to draw thither song-birds, and to bear fruit for man. Plant trees, O man, that last waste land, and be careful of those that are planted.

BORAX.—The washerwomen of Holland and Belgium, so proverbially clean, and who get up their linen so beautifully white, use refined borax as a washing powder instead of soda, in the proportion of a large handful of borax powder to about ten gallons of boiling water; they save in soap nearly half. All the large washing establishments adopt the same mode. For laces, cambrics, &c., an extra quantity of the powder is used, and for erinolines (required to be made very stiff,) a strong solution is necessary. Borax being a neutral salt, does not in the slightest degree injure the texture of the linen; its effect is to soften the hardest water, and, therefore, it should be kept on every toilet table. To the taste it is rather sweet, is used for cleansing the hair, is an excellent dentrifice, and in hot countries is used in combination with tartaric acid and bi-carbonate of soda as a cooling beverage. Good tea cannot be made with hard water; all water may be made soft by adding a teaspoonful of borax powder to an ordinary-sized kettle of water, in which it should boil. The saving in the quantity of tea used will be at least one fifth.

GAPES IN CHICKENS.—A writer in the *Rural New Yorker* says, that he has found by accident, that "dough raised with milk rising is a sure and safe remedy for gapes in chickens, fed while fermenting, but while still sweet. He has tried it for six years, but says that where he seasons the feed of his chickens with salt, as for cooking, they never have the gapes.

FEEDING HENS IN WINTER:—A writer says: I have twenty-eight chickens, large and small, several of them fall chickens. I obtained but a few eggs the fore part of the winter—not more than one or two a day. The feed was corn and oats. In January I tried the experiment of hot feed once a day, in the morning. As soon as the fire was started in the cook stove, I put a quart or so of small potatoes in an old dripping pan, and set them in the oven.—After breakfast I took a quart or more of wheat and buckwheat bran, mixed, put it in the swill pail, and mixed into thin mush with boiling water, then added about one quart of live coals from the stove and put into the potatoes hot from the oven, adding all the egg-shells on hand, and sometimes a little salt, and sometimes a little sulphur. These mashed together are fed immediately in a trough prepared for the purpose, made about ten feet long, of two boards six inches wide nailed together, and two short pieces nailed on the ends, with a narrow strip nailed lengthwise on the top, and two bearers under. The object of this was to keep the hens out of the trough and leave room to eat each side of the narrow strip. At noon I fed six ears of corn, cut up in pieces an inch long; and in the evening, oats and wheat screenings about one quart. Now for the result.—In about a week the number of eggs increased six-fold, and in about two weeks, and since, they have ranged from twelve to twenty eggs per day. The coldest weather made no difference. When it was cold and stormy, I kept them in the hen-house all day, and generally until ten or twelve o'clock.—Such singing over the corn at noon I never heard from hens before—a concert of music that would have done any lover of eggs good to hear.

SAYINGS OF DISTINGUISHED HORTICULTURISTS AS TO SIZE OF FRUIT-TREES FOR PLANTING.

Plant small trees. They cost one-half less at the nursery, less in transportation, and in planting you will lose scarcely none at all. You can form the tops to suit yourself. Form the heads as low as you please, which, on the prairies, is absolutely necessary to success.—*Dr. Kennicott.*

Apple-trees two years old are better than those of more advanced age; and an apple-tree transplanted at that age, all other things being equal, will produce fruit as soon as one transplanted at four years old, and make a more healthy tree,—*Mr. Buchanan.*

Mr. Loughry, the distinguished peach-grower, uniformly selects his peach-trees one year old from the bud, and the same for apples and pears. He has transplanted trees of all ages, from one to five years old, and from his experience, he would prefer them at one year old.

Mr. Mottier thinks, upon the whole, aside from the peach, he would prefer two year old trees, and would not take trees over three. At one year old, the apple, pear, etc., have not their roots sufficiently developed. He has planted trees for thirty years.

Mr. Mears has, in the last ten years, transplanted thirty thousand trees. As to peaches, pears and plums, he would prefer them at one year old, and the apple at two years old. Much depends on subsequent cultivation. He condemns the plan of placing a stake by the tree in such a careless manner that it usually becomes the duty of the young tree to hold up the stake.

AN ATMOSPHERIC DRYER.—A substance capable of drying the walls and the atmosphere of damp houses is important and valuable. Such a substance is the chloride of calcium. It is a salt which has such an affinity for moisture, that it attracts no less than 124 parts of water for every 100 parts of itself, from the atmosphere or other sources. It will even dry damp clothes if placed near them in a room, and will remove the sweat from damp walls of buildings. As damp houses are generally unhealthy, causing chills and fevers and rheumatism, it is a most useful substance, we believe, for the remedy of such evils. If placed in sheet-iron pans in close proximity to damp walls, it soon becomes saturated with the moisture and as a consequence, the walls soon become dry. A moderately dry atmosphere is undoubtedly the best preservative, in cold weather, against sudden chills, and it is well known that a damp atmosphere feels more chilly than a dry one, even when the latter is several degrees lower in temperature. It is also very dangerous for any one, and especially a person predisposed to lung diseases, to sleep in a damp apartment. Now, to remedy the difficulty, take one pound of dry chloride of calcium, spread it upon an iron pan and it will soon absorb the moisture, and render the room safe and comfortable. In many cases it may thus be employed as an excellent sanatory agent, and it is for this reason we direct public attention to it. It may also be used over and over again by driving off the water which it absorbs, by heating the iron pan containing it over a fire.—*Scientific American*.

RULES FOR GOOD HABITS:—1. Have a plan laid beforehand for every day. 2. Acquire the habit of untrifling industry. 3. Cultivate perseverance. 4. Cultivate the habit of punctuality. 5. Be an early riser. 6. Be in the habit of learning something from every one with whom you meet. 7. Form fixed principles on which to think and act. 8. Be simple and neat in your personal habits. 9. Acquire the habit of doing everything well. 10. Make constant efforts to be master of your temper. 11. Cultivate soundness of judgment. 12. Observe a proper treatment of parents, friends and companions.

GARDENING.—There is pleasure in a garden which none but gardeners know. From the moment you love the art, and look nature in the face, you are at peace with your own heart; you have no absurd opinions to combat, no point to strain, no adversary to crush, no fool to annoy. You are actuated by fear or favor to no man. Patience grows out of the endless pursuit, and turns into a luxury. A streak in a flower, a wrinkle in a leaf, a plant in perfect health, gives us enjoyment for another half day. The hours pass on untold, without chagrin, and without weariness; nor would you ever wish to pass them otherwise. Innocence is joined with industry, pleasure with business, and the mind is satisfied.

PARENTS must never put away their own youth. They must never cease to be young. Their sympathies and sensibilities should be always quick and fresh. They must be susceptible. They must love that which God made the child to love. Children need not only government firm and mild, but sympathy, warm and tender. So long as parents are their best and most agreeable companions, children are comparatively safe, even in the society of others.

CONSTANT EMPLOYMENT.—The man who is obliged to be constantly employed to earn the necessities of life and support his family, knows not the unhappiness he prays for when he desires wealth and idleness. To be constantly busy is to be always happy. Persons who have suddenly acquired wealth, broken up their active pursuits, and begun to live at their ease, waste away and die in a very short time.—Thousands would have been blessings to the world, and added to the common stock of happiness, if they had been content to remain in an humble sphere, and earned every mouthful of food that nourished their bodies. But no; fashion and wealth took possession of them, and they were completely ruined. They ran away from peace and pleasure, and embraced a lingering death. Ye who are sighing for the pomp and splendor of life, beware! Ye know not what ye wish. No situation, however exalted—no wealth, however magnificent—no honors, however glorious, can yield you solid enjoyment while discontent lurks in your bosom. The secret of happiness lies in this—to be always contented with your lot, and never sigh for the splendor of riches, or the magnificence of fashion and power. Persons who are always busy, and go cheerfully to their daily tasks, are the least disturbed by the fluctuations of business, and at night sleep with perfect composure.

THE FIG AT THE SOUTH.—Of all the fruits cultivated in the South, the fig requires the least care, and is one of the most productive and useful. South of the latitude of 32 degrees, the fig tree produces three crops a year, commencing in May and bearing until November, but in central Georgia we generally gather but two crops a year, unless the season is peculiarly favorable, the first or early crop being often killed by spring frosts. The figs are mostly eaten directly from the tree, as soon as ripe, and may be found in abundance upon the breakfast table of all lovers of fine fruit. The fig tree grows freely from cuttings planted early in the spring, and will sometimes bear the first year, generally the second. It has ever been a source of surprise to us that the fig is not extensively cultivated and turned to more profitable account; but this is not the only instance in which the prodigal and generous gifts of nature are lavished upon men in vain. We hear of gentlemen near Mobile, upon the Gulf, who have planted the fig largely, with the intention of using the fruit as northern farmers use apples—for the purpose of fattening hogs.—*Southern Cultivator*.

REMEDY FOR BLIND STAGGERS.—Take one gallon of green hickory wood ashes, one-half pint of spirits turpentine, one ounce of gum camphor, and a sufficiency of ley to make a thin mush. Fill a horn with this mush while boiling hot, and with a thin cloth stretched over the end of the horn, apply it four times upon or over the region of the brain, each time filling the horn with the boiling mush, which will blister the skin. In connection with this, it is necessary to burn rags wet with spirits of turpentine, under the horse's nose, until you produce a free discharge. You should also bleed freely from the neck, and give one pint of linseed oil as a purge.—*Cotton Planter*.

ELDERBERRY WINE.—To one quart of the juice put three pounds of sugar, and add water sufficient to make a gallon. After fermenting with a little yeast, and it has become clear, bottle it.

ON THE USE OF CHARCOAL.—A writer in the *Philadelphia Farmer and Gardener*, says that a remarkable change he has found effected in his trees by the use of charcoal, more particularly in the peach, which had begun to show signs of the yellows. He says that the disappearance of the yellow leaf, and its replacement by a lively, healthy green, were to his mind, convincing evidence of the efficacy of charcoal in arresting this wide-spread disease, if taken in its incipient stages. He applied the charcoal to the depth of some three inches, as widely as he supposed the roots of the tree extended. It was then dug in, and as thoroughly as possible incorporated with the soil. The effects were almost immediate.

In his garden crops he obtained equally satisfactory results, and he is well convinced that charcoal, where it can be procured at any reasonable cost, can be applied with profit to garden crops, as, in addition to its immense capacity for absorbing the gases of the atmosphere, the mechanical influence it exerts upon soils, particularly those of a close texture, are of the highest importance to the growing crops.

Liebig says that charcoal not only surpasses all other substances in the power which it possesses of condensing ammonia within its pores, but it is at the same time the most unchangeable substance known; it must constitute, therefore, not only one of the most powerful applications known, but really the most durable one in existence.

REMEDY FOR THE BITE OF MAD DOGS.—A Saxon forester, named Castell, now of the venerable age of 82, unwilling to take to the grave with him a secret of so much importance, has made public in the *Leipzic Journal* the means which he has used fifty years, and wherewith he affirms he has rescued many human beings and cattle from the fearful death of hydrophobia. Take immediately warm vinegar or tepid water, wash the wound clean therewith and then dry it; then pour upon the wound a few drops of hydrochloric acid, because mineral acids destroy the poison of the saliva.—*London Medical Circular*.

WHITEWASH.—This article, as ordinarily made, rubs off of the walls after it becomes dry, soiling clothes and everything coming in contact with it. This may be obviated by slaking the lime in boiling water, stirring in meantime, and then applying after dissolving in water, white vitriol (sulphate of zinc) in proportion of four pounds to a barrel of whitewash, making it the consistency of rich milk. The sulphate of zinc will cause the wash to harden, and prevent the lime from rubbing off. A pound of white salt should also be thrown into it.

WASH TO DESTROY INSECTS.—M. LETELLIER, a medical man at Taverny, near St. Leu, states that he finds an excellent wash for destroying insects to be made by boiling $1\frac{3}{4}$ pints of water in 63 grains each of red American potash, flour of sulphur, and soap. If it requires to be stronger, the quantity of sulphur and potash may be doubled, but the soap must remain the same. Immersion for a second only, kills even ants, the largest caterpillars, and the cockchafer grubs. The solution does no harm to plants. When grubs have to be killed, a hole is made in the ground with a dibble, and a funnel is placed in the hole, through which the solution is poured.—*Journal of Paris Horticultural Society*.

TO CURE HARD PULLING HORSES.—A writer in the *London Field* says: "Put the curb chain inside the mouth, from hook to hook, instead of out. How or why it acts with such considerable effect, I know not; but at times, it utterly puts an end to overpulling. To stop a runaway horse, or render the most pulling brute quiet and playful with his bit, get a double snaffle, rather quick and heavy, the joints rather open; cut an old curb chain in half, and let it hang down from the bottom snaffle joint. When the brute offers to pull or bolt, instantly merely drop your hand; of course, the curb chain will drop between his front teeth; and should the beast savage it, (if any of your correspondents wish to try the effect on themselves, they have only to place a nut between their front teeth and try to crack it—they will soon understand the vast difference between pleasure and pain—so does the horse;) in a very short time, he will play with the very thing he before tried to savage; and in the end, become, from a vicious brute, a playful and good mouthed animal."

CULTIVATION OF THE TOMATO.—In December dig a ditch two feet deep, twenty inches wide; fill in one foot with solid stable manure. Then mix the dirt from the ditch with same quantity of manure; fill in, and several inches above the surface. Let it stand there until you wish to set out your plants in the spring. Then take pieces of plank 2×4 inches and 12 feet long; put them in the ground two feet—say two pieces at the head of the ditch, and two at every 8 feet along the whole length of the ditch. Before setting the plants out, the surface of the ditch should be loosened up to half the depth. Set your plants out along between these pieces of plank, 6 feet apart, and as they grow up and require support, nail narrow strips or slats from one piece of plank to the other, lengthwise on each side not exactly opposite each other, except the two first. The more the vines grow the greater the quantity of fruit produced.—Cultivated in this manner, the vines will grow eight or ten feet high, and bear luxuriantly until a killing frost.—J. D. S. in *Southern Cultivator*.

SALT FOR STOCK.—A correspondent of the *Boston Cultivator* says: My practice is to keep salt and wood ashes where horses can have access to them in the stable. I also keep salt in boxes, in my cattle and sheep sheds, during the time they are kept up; and I make salt boxes with roofs to them, to stand in my sheep pastures, with an opening on one side for the sheep to put in their heads. I mix in a little tar and sulphur with the salt for sheep, deeming the mixture healthy for them. My conviction is, therefore, that salt should be put where stock may get it when nature requires. Hence my practice.

CALIFORNIA WINES.—The *San Francisco Herald* states that the present stock of California vines now under cultivation will yield fifty millions of dollars worth of wines and brandies in twenty years from the present day. The wine product of the Golden State increases at the rate of fifty per cent. annually, and the quality of these is equal to the best imported. In all wine-growing countries, where the people use wine at their tables, and where a bottle of it can be obtained for three cents, drunkenness and bar-rooms are unknown.

A few books well chosen are of more use than a great library.

Domestic Economy, Recipes, &c.

For the Farmer and Planter.

TO PRESERVE MEAT FROM THE RAVAGES OF BUGS AND WORMS:—Take the meat when it is ready to hang up to dry, wash it, and while it is wet rub finely ground Black Pepper all over the flesh part, and in every cut and crevice, where there is any chance for a fly or bug to deposit an egg, then hang up, and dry in the common way, and your hams will be as clear of bugs and worms at a year old as they were when first hung up.

The above has been tried four years with perfect success.
E. H. VAUGHAN.

HOW TO MAKE GOOD COFFEE.—Although coffee is a beverage in daily use in almost every family, there are comparatively few who appear to know how to make a really good cup of it. Generally, the first thing Biddy does in the morning is to make the coffee, no matter if it is an hour before the other portion of the breakfast will be ready. During the whole of this time it is kept boiling furiously, and the house is filled with its fragrance. This fragrance is very agreeable, but, unfortunately, when you have it, you gratify your olfactories at the expense of your palate; for I am perfectly satisfied that this over-boiling produces that acrid bitter taste so often found in coffee. My plan is to leave the making of the coffee until the last moment. Having the boiling water ready, and my ground coffee properly mixed and cleared, I pour the boiling water over the coffee, and then allow it to *boil just one half of a minute*. Try it, if you doubt the correctness of my method.

HOW TO MAKE HARD SOAP.—Being about to change my place of residence, and having on hand a quantity of excellent soft soap, which it was not convenient to remove, my husband, who was something of a chemist, said it could be easily changed into hard soap, by heating it and adding common salt. I did so, adding the salt a little at a time, and trying it by cooling a little of it. When I found a thick scum rise to the surface, it was dipped into tubs and allowed to stand until next day. The hard crust was then taken off, melted and poured into moulds, and when cold cut into bars and dried. It proved very good, the older and dryer the better.

CHILBLAINS.—To cure chilblains, simply bathe the parts affected in the liquor in which potatoes have been boiled, at as high a temperature as can be borne. On the first appearance of ailment, indicated by irritation and inflammation, this bath affords almost immediate relief. In the more advanced stages, repetition prevents breaking out, followed by a certain cure; and an occasional adoption will operate against a return, even during the severest frost.

WE ONCE saved the life of an infant which had been inadvertently drugged with laudanum, and was fast sinking into the sleep from which there was no awakening, by giving it strong coffee, cleared with the white of an egg, a teaspoonful every five minutes, until it ceased to seem drowsy.—*Dr. Hall.*

THE BEST RAZOR STROP.—Get a root from a eypress tree, dry it in the shade, shape as you wish, and straighten with a sharp foreplane. Use it as any other strop, and once in six months take a thin shaving off every side with a keen foreplane, when it will be as good as new.

These eypress roots are beginning to be known among the barbers of New Orleans, and other cities, as superior to all other strops.

AN EXCELLENT LOAF OF CAKE, May be made by mixing half a cup of butter with a cup of sugar, and adding a cup and a half of sour milk, (or sweet if you prefer, by mixing two teaspoonfuls of cream tartar with your flour,) half a cup of raisins, three cups of sifted flour, and a teaspoonful of soda.—This cake recommends itself when eggs are scarce.—*NELLIE, in Valley Farmer.*

TO DYE BLACK:—Take, say six cents worth of the extract of logwood, two cents worth of blue vitriol; put each separately into six quarts of water. Bring both to a boiling heat. Dip the cloth into the vitriol water first, then into the logwood water, then alternately from one to the other until it has been dipped three times. Then wash in strong, hot suds, and rinse in soft, cold water.

SWEET POTATOE PIE.—Boil the potatoes very soft, then peel and mash them. To every quarter of a pound put 1 quart of milk, 3 tablespoonfuls of butter, 4 beaten eggs, together with sugar and nutmeg to the taste. It is improved by a glass of wine.

MEASURE CAKE.—Stir to a cream a teacup of butter, 2 of sugar, then stir in four eggs beaten to a froth, a grated nutmeg, and a pint of flour. Stir it until just before it is baked. It is good baked either in cups or pans.

AN EXCELLENT SALVE, for burns, cuts, or bruises. Half a pound of rosin, half a pound of lard, quarter of a pound of beeswax, simmer all slowly together and strain through a thin cloth.—*Mrs. S. K. W.—Cedar, Minn.*

APPLE CUSTARD.—Pare and quarter a quart basin full of sour apples, stew and mash fine, then add one teacup of coffee sugar; the white of six eggs beaten to a stiff froth; flavor to the taste; beat all together, and serve with sweetened cream.

JELLY CAKE.—One pound of butter, one of sugar, one of flour, twelve eggs, nutmeg and rose water.—Butter a dinner plate, and bake thin; trim the edges with a penknife.

TO OBSCURE WINDOW PANES:—If one ounce of powdered gum tragacanth, in the white of six eggs, well beaten, be applied to a window, it will prevent the rays of the sun from penetrating.

TO MAKE HENS LAY IN WINTER:—Pork scraps or greaves, fed in moderate quantity, are found to have a marvellous effect in the production of winter eggs. Give them also sand and gravel.

FRUIT CAKE.—One pound and a-half of flour, one pound of sugar, one-fourth pound of butter, one pint of sweet milk, six eggs, fruit and spice as much as you please.